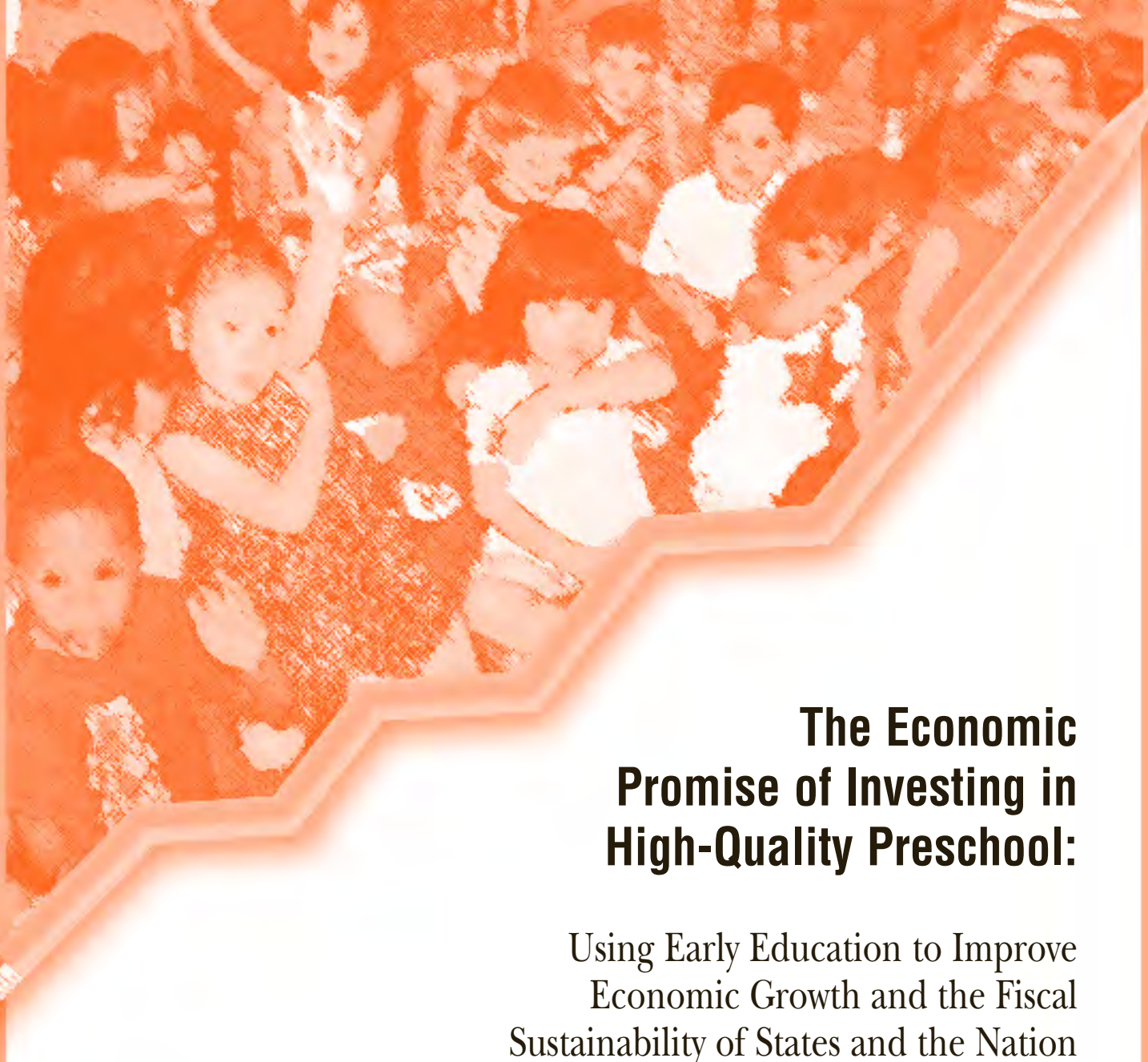
The Economic Promise of Investing in High-Quality Preschool

Using Early Education to Improve Economic Growth and the Fiscal Sustainability of States and the Nation

CED

A Statement by the
Research and Policy Committee of the
Committee for Economic Development



The Economic Promise of Investing in High-Quality Preschool:

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Committee for Economic Development

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Purpose of This Statement

The Committee for Economic Development (CED), a voice for leaders in business and education, has a long history of supporting early education for our nation's youngest students. Four decades ago, CED Trustees first acknowledged the need for "more and better early education," noting that early education is critical to student preparation. Just a few years later, CED recommended "the establishment of public and private preschools" stating that preschool is desirable for all children, and a necessity for disadvantaged children.

Trustee support for preschool has remained steadfast throughout the years, and in 2002 CED released its first report focused solely on early education. *Preschool for All: Investing In a Productive and Just Society* called for universal access to preschool for all children aged three and over.

This report, *The Economic Promise of Investing in High-Quality Preschool*, builds on CED's previous work in early education by providing the economic evidence that justifies increasing investments in preschool.

In the 40 years since CED first recommended investing in preschool, it has become generally accepted that preschool programs play an important role in preparing children—both advantaged and disadvantaged—to enter kindergarten. There is also a consensus that children from disadvantaged backgrounds in particular should have access to publicly supported preschool programs that provide an opportunity for an "even start."

The social equity arguments for preschool programs have recently been reinforced by compelling economic evidence which suggests that society at large benefits from investing in these programs. Broadening access to preschool programs for *all* children is a cost-effective investment that pays dividends for years to come and will help ensure our states' and our nation's future economic productivity.

ACKNOWLEDGEMENTS

This policy statement was developed by a dedicated group of CED trustees and guests who served on the subcommittee that prepared this report (see page vii). We are grateful for the time, efforts, and insight that each put into the development of this report.

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Executive Summary

Early education programs have long been regarded as an important step in preparing children for primary school—but investing in the education of America's youngest learners has emerged as one of the most promising ways to help strengthen the future economic and fiscal position of our states and nation.

As the United States faces unprecedented competitive challenges and a serious fiscal crisis, any comprehensive strategy to sustain economic strength must include a world-class education system. Money invested today in high-quality, early education will help children develop the social, emotional, and academic foundations that will serve them throughout life. But widely accessible early childhood education programs will do more than prepare individual children for personal success: The economy will benefit from a better prepared workforce, increased employment opportunities, stronger growth, and rising standards of living, while society will benefit from less crime, enhanced schools, and children who are better prepared to participate in democratic processes.

In short, high-quality preschool programs:

- ***Offer societal benefits that far outweigh program costs by improving the later education, employment, earnings, and crime outcomes of students who attend preschool.*** Extending preschool programs to all students could yield $2 to $4 in net present-value benefits for every dollar invested. Preschool investments for just one age cohort of students could generate as much as $150 billion in net present-value benefits to the United States.[1]
- ***Improve the fiscal position of states and the nation by reducing education and criminal-justice costs, while boosting income-tax revenues.*** Of the fiscal benefits expected from new state investments in preschool, more than 70 percent are attributable to cost savings in crime and K-12 education. For every dollar spent on preschool, states are projected to recoup 50 to 85 cents in reduced crime costs and 36 to 77 cents in school savings.[2]
- ***Contribute to long-term economic growth and development for states and the nation.*** Preschool programs would boost long-term economic growth; by 2080, gross domestic product could be higher by 3.5 percent, or more than $2 trillion in today's dollars.[3] Preschool also increases the long-run employment level of states by more than twice as much as traditional economic development programs.[4]

While preschool is an economic and educational priority, it is also part of a continuum of necessary childhood investments, beginning in the prenatal months and spanning the infant, toddler, and later school years that together will have the greatest impact on children's development and, ultimately, America's economic well-being.

THE PRESCHOOL LANDSCAPE

In recent years, states have acknowledged the benefits of preschool; 39 states now provide some access to state-funded prekindergarten programs, enrolling more than 900,000 children. The federally funded Head Start program also provides preschool for more than 900,000 poor children. Despite increases in enrollment and broader support for preschool, unmet needs and quality concerns remain:

Access: Children's access to publicly funded prekindergarten programs is uneven. Head Start is unable to serve all poor children, and most states continue to limit public enrollment to low-income or at-risk children. Only three states—Florida, Georgia, and Oklahoma—offer preschool to all four-year-olds.* Many children in middle-class families are not income-eligible for public prekindergarten, yet are

* No states currently provide publicly funded prekindergarten for all three-year-olds.

priced out of private preschools. For many families, high-quality preschool is simply too expensive. In most states, enrolling a four-year-old child in center-based care is more expensive than attending a state college or university.

Quality: Although 66 percent of four-year-olds are enrolled in preschool, many are not enrolled in high-quality programs. Quality standards for state-funded prekindergarten programs vary widely and, in 2005, fewer than one-half of state-funded prekindergarten programs met at least 7 of 10 quality benchmarks representing *minimum* qualifications.*

U.S. ECONOMIC, DEMOGRAPHIC, AND FISCAL CHALLENGES AHEAD

The returns to preschool investments are impressive under any economic condition, but investing in early education is particularly important in our current economic climate. The United States faces economic, demographic, and fiscal realities that threaten our economic growth and competitiveness.

The forces of globalization and technology continue to redefine the knowledge economy: tomorrow's workers must rely more on brain than on brawn. Technological improvements have led to escalating skill requirements, and globalization has contributed to the loss of many labor-intensive and digitally transferable jobs in the United States. At the same time, globalization has opened new markets for sophisticated goods and services from the United States, but competition from China and India is intense. Without a well-educated workforce, it will be difficult to maintain the increases in productivity that raise American standards of living.

Demographic changes will make it difficult to attract and retain the skilled workers we need. Past increases in economic output were propelled in part by rapid growth in the *size* of the labor force. In the coming years, labor force growth will slow sharply as the baby boom generation retires. Furthermore, improving the *quality* of the labor force will also be difficult—high school and college graduation rates are not rising, and most new workers will come from minority populations that have historically completed fewer years of school.

In addition, tight state budgets and worsening federal budget deficits threaten funding for education and other productivity-enhancing investments. Growing outlays for Medicare and Social Security in coming years threaten fiscal sustainability. Today's newborns will need to generate as much as $150,000 more in present-value tax dollars than they will receive in benefits just to pay for existing obligations to their parents' and grandparents' generations.[5] Changes to current tax and spending programs are unavoidable, but the education of the next generation of workers must not suffer.

THE BENEFITS OF PRESCHOOL

America is wasting its education dollars on remediation of past failures. Getting it right from the start would leverage all other educational investments. Better-prepared students would make more use of mainstream programs, and put less strain on school budgets through demands for remediation.

- ***Gaps in student ability are already apparent by kindergarten.*** Because of disparities in children's early environments and family resources, students from advantaged families tend to demonstrate higher cognitive abilities and perform better on other measures of school readiness, including social skills, health, and approaches to learning, than their middle- and low-income peers.
- ***Learning is cumulative.*** Children develop skills during the early years of life that facilitate later learning—in essence, "learning begets learning, and skill begets skill."[6]
- ***Educational gaps later on are often difficult and costly to correct.*** Remediation in the later school years, or through adult education and training programs, is often only moderately successful, and the direct costs of remediation, as well as the indirect costs of inadequate education, are huge.

* The National Institute for Early Education Research (NIEER) lists 10 indicators of quality prekindergarten: comprehensive curricular standards, teachers with bachelor's degrees, teachers with specialized training in early education, assistants with Child Development Associate (CDA) credentials, teachers and assistants receiving at least 15 hours of in-service training each year, class sizes of less than 20 children, staff-child ratios of 1:10 or smaller, health screening or referral services available, as well as one support service offered, at least one meal offered and site visits to monitor implementation of quality standards. [W. Steve Barnett, Jason T. Hustedt, Kenneth B. Robin, and Karen L. Schulman, *The State of Preschool: 2005 State Preschool Yearbook* (New Brunswick, NJ: NIEER, 2005), p. 32]

In the short term, providing access to high-quality early childhood education assures a more successful transition to primary school. Kindergarten teachers can vouch for the importance of high-quality preschool with students who attended high-quality preschool discernibly better prepared for kindergarten than those students who did not attend. But the benefits of early education persist long after children enroll in kindergarten. Convincing evidence of the long-term benefits of preschool is now available from high-quality, rigorously evaluated early childhood education programs—most notably the High/Scope Perry Preschool program, Abecedarian program, and Chicago Child-Parent Centers—that enrolled economically disadvantaged children and followed them into their adult years. In brief:

- ***Education:*** Children who participate in high-quality preschool programs demonstrate higher academic achievement, are less likely to repeat a grade or require special education classes, and are more likely to graduate from high school and enroll in college.
- ***Crime:*** Students who attend high-quality preschools are less likely to participate in criminal activity during their juvenile or adult years, or be victims of child maltreatment or neglect.
- ***Employment:*** As adults, former preschool students are less likely to be unemployed and more likely to have higher earnings than similar students who do not participate in preschool programs.
- ***Social Welfare and Health:*** Former preschool students are less likely to depend on public assistance, become teenage parents, or endanger their health by smoking.

THE ECONOMIC AND FISCAL IMPACTS OF PRESCHOOL

High-quality preschool programs contribute to America's economic bottom line in three related, yet distinct, ways. First, the positive impact from these programs on students' lives increases the likelihood that these students will end up as net economic and social contributors to society. Second, federal, state, and local budgets will improve significantly when governments can dedicate more of their resources to productive endeavors, rather than to remediation, incarceration, and welfare. Finally, sustained preschool investments are a cost-effective way to ensure a better educated workforce, boosting long-term economic growth.

Social Benefits and Cost-Effectiveness

Summing the economic benefits of better educational, employment, criminal, and social outcomes suggests that preschool pays, many times over, for the cost of establishing these programs. For example, the Chicago Child-Parent Centers Program is estimated to generate more than $40,000 in net present-value benefits per program participant.* The Perry Preschool program is estimated to generate nearly $230,000 in benefits per student, much of which is attributable to avoiding the tangible and intangible costs of crime. The long-term follow-ups of these targeted model programs suggest that every dollar invested will return about $4 to $16, with the public recouping one-half to three-quarters of the investment.[7]

Expanding access to these programs to all children, and assuming smaller benefits for more advantaged students, continues to be a cost-effective investment, although the benefit/cost margin narrows. Implementation of a voluntary, universal preschool for all students suggests an expected payback of at least $2 for every dollar spent.[8] Even though the benefit/cost ratios for universal programs are lower than for targeted programs, the total net benefit of a universal program is estimated to be much larger because more students participate.

Annual rates of return on preschool investments are estimated at 10 percent or higher each year over the students' lifetimes, exceeding the 6 to 7 percent average rate of return typically expected of government programs and the stock market. Preschool is far more cost-effective than programs that correct educational and social problems in later years. Furthermore, states will likely recoup most of their own investments, because it is estimated that 85 percent of 16-year-olds will live in the same state where they attended preschool, and 65 to 75 percent of children will continue to live in that state during their prime working years.[9]

* Throughout this report, all investment returns reflect the lifetime net present-value of benefits.

Fiscal Benefits

Considering just the payback to state budgets from implementing preschool programs (i.e., excluding the considerable increase in participants' earnings), state prekindergarten programs are estimated to return $1.18 to $2.25 for every dollar states invest.[10] The benefits are largely attributable to near- and long-term savings in crime and education. Schools save money when students arrive better prepared to learn, and teachers are more satisfied with their jobs.

Preschool programs do more than just provide cost savings; they also increase revenues. Immediate increases in tax revenues are provided by parents who are more likely to work if their children are in high-quality preschool, although the larger, but long-term, revenue increases come from the improved earnings prospects of children who attend. Increased tax revenues eventually will pay for 20 to 50 percent of states' costs to expand preschool to all students.[11]

Economic Growth and Development

Education can be an important component of a focused economic development strategy, as well as a plan for long-term national economic growth. Every dollar invested in preschool provides states with nearly $3 in net present-value earnings. A billion dollar state investment in a part-day, part-year preschool program is expected to increase long-run state employment by about 1.3 percent.[12] Furthermore, the national benefit from investments in preschool is about 40 percent higher than the benefit from a state perspective because some state benefits that are lost when better educated preschoolers move to other states are still captured by the nation.

Sustained nationwide investments in high-quality early education will also boost U.S. economic growth. Economic growth analysis has long attributed a key role to labor-force quality. By that widely accepted conclusion, today's preschool students will become tomorrow's better-skilled workers. The gross domestic output (GDP) will begin to grow faster when those workers join the labor force, with the impact visible in the numbers about 40 years after the first class of students enrolls. By 2080, the U.S. economy is expected to produce an additional $2 trillion dollars in output ($7,700 per capita), an increase of 3.5 percent.[13]

IMPROVING QUALITY

Quality is paramount if preschool programs are to have an effect on children's learning and provide the economic and financial benefits we expect from our investment. High-quality preschool is much more than custodial care; it provides children with meaningful learning and play experiences guided by qualified teachers in an enriched educational environment.

Quality programs follow an age-appropriate curriculum that focuses on the academic, social, emotional, and physical development of children. The most successful preschool programs employ teachers with bachelor's degrees and training in early childhood education or development. Well-qualified teachers expose children to extensive vocabularies and knowledge that stimulate curiosity while preparing them to read, write, and count. Educated teachers also demonstrate positive communication skills that boost children's self-confidence and self-control. Attracting and retaining well-qualified preschool teachers requires compensation that is equal to that of elementary school teachers.

Small class sizes and low child/teacher ratios are also important to maintain classroom order and provide individual student attention. Preschool programs should offer adequate hours of instruction and integrated child care for working families. Parents are children's primary teachers and preschool programs should educate parents and involve them in their children's development to further improve learning during the preschool years.

EXPANDING ACCESS

Preschool benefits virtually all children, not just those at risk because of socioeconomic disadvantage. Poor educational performance during the elementary and secondary school years extends beyond just low-income students. Preschool-related gains in academic achievement are evident across income groups, with low-income students benefiting the most.[14]

Practical realities also suggest broad access to early education programs should be made available. Preschool programs available to all students can reach those children who, because of varying family circumstances, may otherwise fall through the cracks. Widely accessible public programs may be more efficient and easier to administer than programs with enrollment restrictions because they do not require

tracking program eligibility. Furthermore, programs that are widely accessible often enjoy broader political and financial support, making it less likely the programs will be cut or suffer budget shortfalls.[15]

Nonetheless, providing voluntary, universal access to preschool does not mean programs need provide uniform services. Diverse providers can offer all children access to a core program that provides high-quality early education, though children who are at-risk may require additional services (such as more intensive instruction, parent education, home visits, or access to health care services). Disadvantaged children also may need services that begin even before age three, to help eliminate gaps in preparation that are present when they begin preschool.

COST AND FINANCING

Extending publicly funded prekindergarten programs to all three- and four-year-old children will be costly, requiring $16 billion to $27 billion in *new funding*.* Implementing universally accessible preschool programs will add about 8 percent to current educational expenditures in the United States.† Despite the early cost, not investing in preschool would likely cost far more later.

There are several ways to fund preschool for all children—including general revenues, lottery revenues, property taxes, federal funding, and "sin" taxes on tobacco and alcohol. Alternative funding options include government cost-sharing, endowments, and scholarship programs. The most reliable funding models include a dedicated source of funding, similar to the K-12 education system.

THE LEARNING CONTINUUM

Prefacing K-12 education with high-quality preschool is a smart investment, but learning begins at birth. The brain rapidly develops during the first years of life and providing children with high-quality experiences from the beginning—including proper nutrition, health screenings, parental education, and high-quality child care—will be the best start in life. At the same time, preschool is not a permanent inoculation. Early education must be complemented with continued high-quality education experiences in the existing K-16 system. Thus, shifting K-16 dollars into preschool would not be productive.

SUMMARY OF RECOMMENDATIONS

CED recommends that communities, states, and the nation make access to publicly funded, high-quality preschool programs an economic and educational priority. The economic benefits from preschool will be greatest when all children are provided with access to high-quality, publicly funded preschool programs. States with existing preschool programs should expand access by eliminating enrollment restrictions based on family income, and maximize program efficiency by coordinating state prekindergarten, federal Head Start, and child-care programs. To achieve the potential economic benefits, preschool programs should provide adequate contact hours to improve student learning and provide options for integrating high-quality child care to meet the needs of working parents. Furthermore, states should welcome a diverse set of providers that meet quality standards and the needs of the parents and communities they serve. Business leaders should advocate preschool and other complementary childhood programs and services, emphasizing the strong returns on investment, and the leveraging of current expenditures.

CED recommends that publicly funded preschool programs meet the quality standards necessary to deliver the promised economic benefits. Existing state prekindergarten programs and the federal Head Start program must be brought up to acknowledged standards. Preschools should adopt research-based, age-appropriate curricula that include cognitive, socio-emotional, and physical development, and align with state kindergarten and elementary education standards. In addition, all publicly funded preschool programs should employ qualified teachers with bachelor's degrees and specialized training in early education. An independent, national board should

* A high-quality program for all three- and four-year-olds could cost as much as $72 billion dollars, but some children will remain in private programs or choose not to enroll. Providing preschool to "all" students assumes that 70 percent of four-year-olds and 50 percent of three-year-olds would participate in prekindergarten, and another 10 percent in each age group would participate in private programs. Estimates for additional funding exclude those students already in publicly funded programs, but do include funding for upgraded programs for 50 percent of current public prekindergarten students (see Table 7 for more detail).

† Spending on K-12 education totaled about $340 billion for the 2004-2005 school year.

review and report on the quality and comprehensiveness of state preschool standards which most states have only recently developed.

Finally**, CED recommends that federal, state, and local governments consider the broad economic benefits of preschool when deciding how to allocate resources in the face of competing uses and demands.** As governments decide where to invest their public dollars, they should consider the different economic and social returns from those investments. Investments in preschool programs should reflect the cost of providing a high-quality education to all three- and four-year-old children. Current state prekindergarten and federal Head Start budget allocations should be revised to support the critical elements of high-quality programs, ensuring the budget structure reflects an efficient and effective use of funds. Preschool programs should also be funded through a dedicated funding source, and teacher compensation should be commensurate with that of public elementary school teachers.

Chapter 1

Introduction

It is generally agreed that high-quality preschool programs—typically providing classroom-based education for three- and four-year-old children—benefit young learners.* For nearly a century, preschool has prepared children for personal success both academically and socially. More recently, it has been acknowledged that high-quality early education programs can also improve the long-term economic and near-term fiscal position of the United States.

"High-quality universal preschool education is an idea whose time has come, and the American business leadership is well aware of its importance."

Daniel Rose, Chairman, Rose Associates, Inc., CED Trustee [16]

High-quality preschool programs advance students well into their adolescent and adult years—improving their educational achievement and attainment, employment, earnings, and health, while lessening their involvement in crime and dependence on social programs. Economically, the long-term outcomes of high-quality preschool programs translate into:

- **Significant public and private benefits,** with economic returns from improved education, employment, and crime outcomes far exceeding the cost of preschool programs;
- **Improved budgets** for federal and state governments, generating savings that allow for more resources to be dedicated to other priorities; and
- **Increased national employment and economic growth**, helping to boost standards of living for all Americans.

The benefits of high-quality preschool promise to be more important in today's economic climate than ever before. Ensuring U.S. economic competitiveness and growth in the years ahead will require a highly educated and skilled workforce. Without improvements in education, demographic changes will make it difficult to cultivate the skilled workforce needed. Fragile state budgets and the deteriorating federal budget situation also threaten the U.S. economy, and policy changes will be needed to avert an economic crisis.

Many other industrialized nations, including economic competitors such as France, the United Kingdom, and Germany, already educate their youngest learners.[17] Most preschool programs in Western Europe are publicly financed and several countries, including Belgium, France, and Italy, have long had near universal enrollment. Several emerging economic competitors have also committed to increasing opportunities for early childhood education. More than three out of four children over age three in Mexico are enrolled in early childhood education programs while China enrolls 40 percent of its children aged three to six and has committed to expand enrollment by 2015. Brazil and India, which currently enroll 20 to 25 percent of children in preschool, also plan to expand enrollment.[18]

Education has always been a primary determinant of economic growth, and U.S. business leaders realize the long-term economic benefits of investing in early learning. A December 2005 poll of business leaders shows that they overwhelmingly favor public prekindergarten programs: More than 80 percent of business leaders agree that investments in effective preschool programs would help the United States remain globally competitive, and improve its long-term economic outlook and the quality of its workforce. Roughly one-half of business leaders surveyed are concerned about declines in the quality of the workforce and anticipate difficulty finding enough

* Throughout this report, "preschool" or "early childhood education" (ECE) is used to describe classroom-based public and private early education programs for three- and four-year-olds. Prekindergarten is used to refer to state-funded early education initiatives, which are often located in public schools, but can also be found in private child-care settings, such as nursery schools.

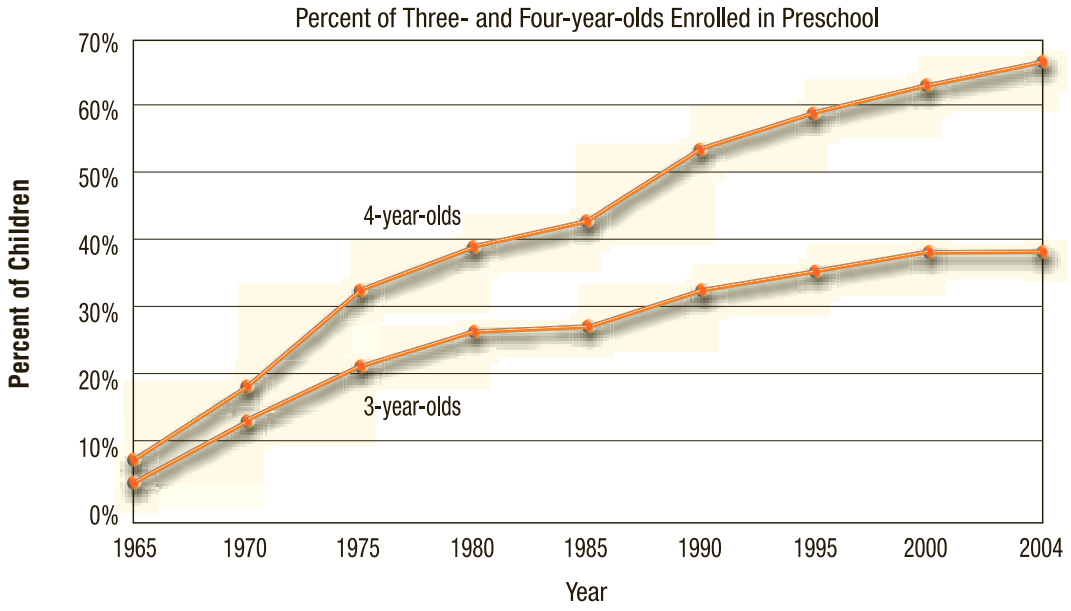
educated and skilled workers to fill future jobs. Nearly 40 percent of business leaders believe American firms are already at a disadvantage based on the education level of the workforce, and one-third said their companies have recruited outside the United States to fill jobs requiring special skills or education. Fully 81 percent of business leaders agree that public funding of voluntary prekindergarten programs for all children would improve America's workforce. But business leaders also value market choices and favor public prekindergarten programs that empower parents to decide what program is best suited for their children and families.[19]

Reforms already underway in elementary and secondary education are essential to improve our economic competitiveness, but for K-12 reforms to succeed, children need to begin school ready to learn. Complementary investments during the preschool years are crucial to leverage existing K-12 investments. Gaps in students' abilities are clearly evident by kindergarten and are often difficult, as well as costly, to overcome.

Though preschool programs are a priority, they too are part of a larger set of early childhood interventions, including prenatal health, child health, parental involvement, and quality child care that can lead to improved child well-being and later outcomes.[20] The building blocks of learning develop early, well before the elementary school years.

Access to early education has grown over the past 40 years. About 66 percent of four-year-old children now attend preschool, a more than nine-fold increase since 1969 when just 7 percent were enrolled; 38 percent of three-year-old children also now attend preschool (see Figure 1).*[21] The federally funded Head Start program established 40 years ago enrolls more than 900,000 low-income children,† and 39 states and

Figure 1: Access to Preschool Has Expanded in The Past 40 Years



Source: National Center for Education Statistics, *Digest of Education Statistics, 2004*, NCES 2006-005 (Washington, DC: U.S. Department of Eduction, 2005), Table 43; Current Population Survey, October 2004, available at http://www.census.gov/population/www/socdemo/school/cps2004.html.

* Roughly 4.2 million three- and four-year-olds attend preschool. Although the majority of five-year-old children attend kindergarten, 17 percent of five-year-old children (or 55 percent of those not enrolled in kindergarten) are enrolled in preschool.

† Roughly 825,000 Head Start children are ages three through five; the remaining children are under three years of age.

the District of Columbia fund prekindergarten programs enrolling more than 900,000 students.*[22]

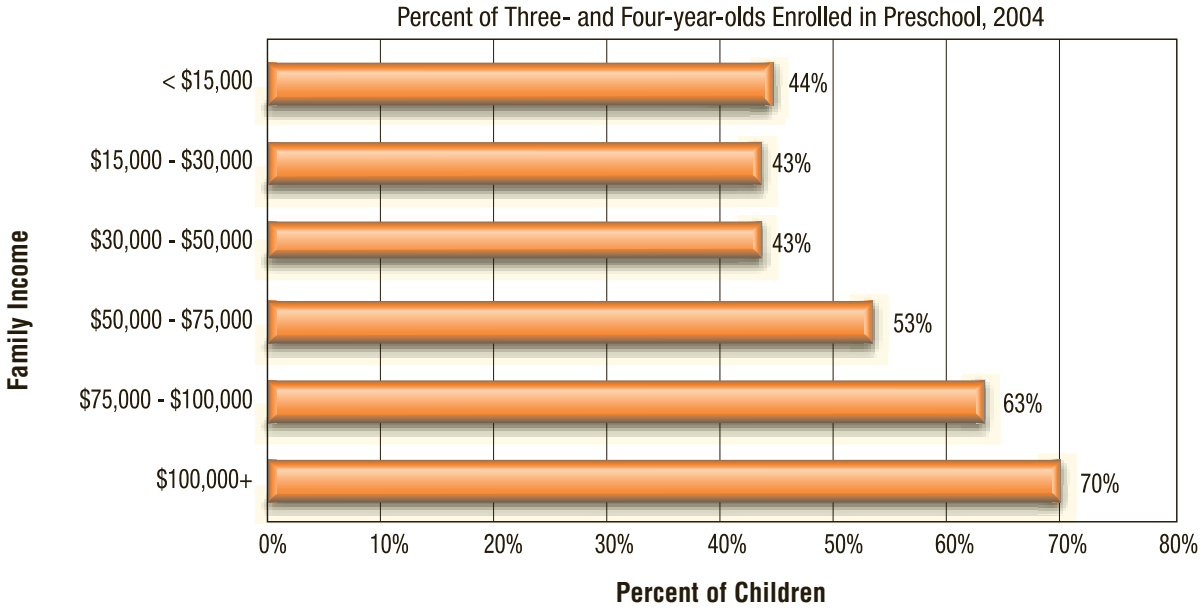
The movement supporting publicly funded preschool continues to gain momentum in many states. Oklahoma, Georgia, and Florida now offer voluntary prekindergarten to virtually all students; West Virginia and New York plan to extend preschool to all four-year-olds, though the New York program lacks funding. Illinois recently enacted a proposal by Governor Rod Blagojevich and will launch the first state prekindergarten program open to all three- and four-year-old children. A number of other governors have also championed prekindergarten. Governor Phil Bredesen of Tennessee has proposed funding to double the number of prekindergarten classrooms in the state in 2005-2006, and Governors Jodi Rell of Connecticut and Christine Gregoire of Washington have proposed funding increases despite budget deficits. In addition, policymakers in Nebraska, North Carolina, Arkansas, and Massachusetts have expanded access, improved quality, increased funding, or developed policy infrastructures dedicated to preschool.[23] Nonetheless, access to preschool—especially high-quality preschool—is not yet a reality for enough children.

Access to Preschool is Uneven

Despite significant increases in the numbers of children who attend preschool, not all can attend high-quality programs. Family circumstances and geography strongly influence who attends.

Access to preschool is influenced by families' socioeconomic status. Well-off families know the value of high-quality preschool programs, and 70 percent of high-income families send their children to preschool (see Figure 2). At the other end of the income scale, about 44 percent of children are enrolled in preschool, often attending publicly funded Head Start and state prekindergarten programs. Middle-class families, however, are often caught in the middle: unable to qualify for public programs yet unable to afford high-quality private programs. Their

Figure 2: Children in Middle-Income Families Are No More Likely to Attend Preschool than Children Residing in Poor Families



Source: Current Population Survey, October 2004, available at http://www.census.gov/population/www/socdemo/school/cps2004.html.

* Florida's Voluntary Universal Prekindergarten Program, which began in Fall 2005, added nearly 100,000 to the published number of children enrolled in state prekindergarten programs.

children are only slightly more likely than disadvantaged children to attend preschool.*

Access to preschool is uneven across and within states. Most families do not have access to public preschool programs and continue to be limited to whatever quality of program they can afford and/or is offered in their neighborhood. In 43 states, the average cost of full-day early education and care for four-year-olds exceeds the cost of attending a state college or university (see Figure 3).

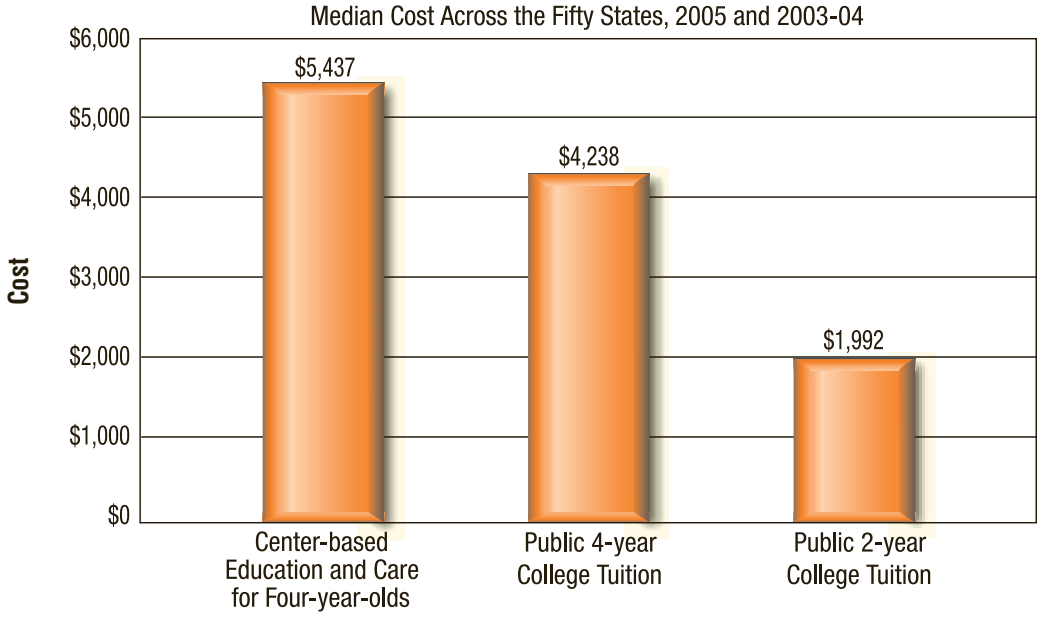
Only two states, Georgia and Oklahoma, and the District of Columbia enroll more than one-half of all four-year-olds in their state-funded prekindergarten classes. Many states enroll fewer than 10 percent (see Figure 4). Fewer than one-half of the state programs allow children to enroll without meeting an income or risk factor criterion. While Head Start provides additional preschool opportunities for poor children, funding is limited. Many centers have long waiting lists and cannot serve all of the eligible children. As a result, only about one-half of poor children are enrolled in Head Start.

Quality is Often Inadequate

Producing the long-term economic benefits promised by early education programs will require more *high-quality* classrooms. Preschool is more than just custodial care; it should provide children with an environment that stimulates learning.

Most preschool programs in the United States meet only some of the benchmarks of a quality preschool program. The most successful preschool programs have small classes, low child-teacher ratios, parental involvement, and support services, but the most important elements are college-educated

Figure 3: Early Education and Care for Preschool Students Costs More Than Most State Colleges and Univerities



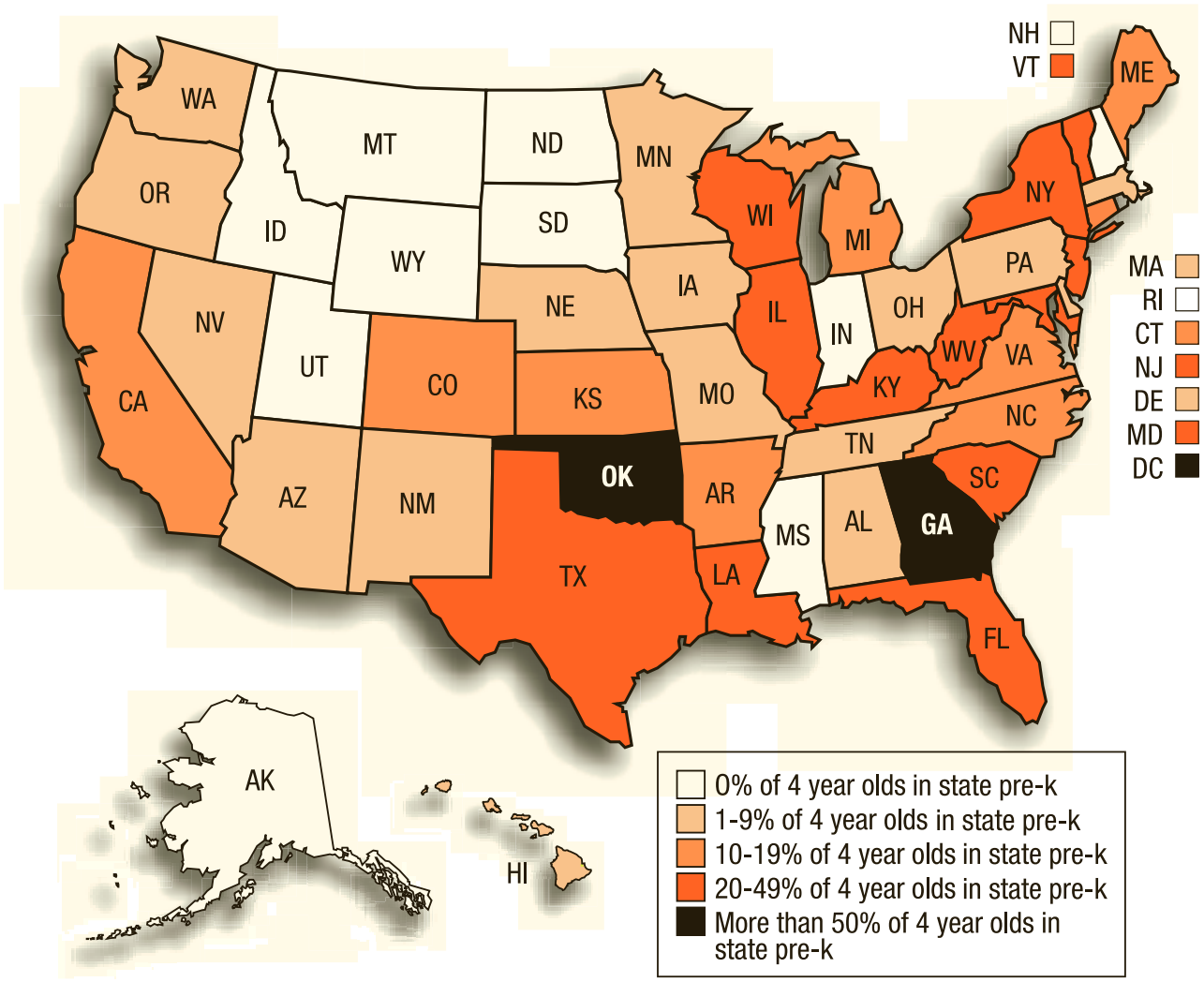
Source: National Association of Child Care Resource and Referral Agencies, *Breaking the Piggy Bank: Parents and the High Price of Child Care*, (Arlington, VA: NACCRRA, 2006); National Center for Education Statistics, *Digest of Education Statistics 2004*, NCES 2006-005 (Washington, DC: U.S. Department of Education, 2005), Table 314.

* Children from different racial/ethnic groups also have varied preschool experiences. More than one-half of White children attend preschool, but African-American children are the most likely to be enrolled in early education programs—although many are not attending high-quality programs. The greatest need for improving inclusion in early education programs is in the Hispanic community, where only 40 percent of children are enrolled in preschool. [Katherine A. Magnuson and Jane Waldfogel, "Early Childhood Care and Education: Effects on Ethnic and Racial Gaps in School Readiness," *The Future of Children*, vol. 15, no 1 (Spring 2005) pp. 178-180]

teachers and an age-appropriate curriculum that stimulates learning while also developing children's physical, social, and emotional skills. Fewer than one-half of state programs require teachers with bachelor's degrees; only 12 states require assistants to have a Child Development Associate (CDA) credential, and only one-half of states have adopted comprehensive curriculum standards that specify content areas for educational programs.[24] In Head Start programs, only about 35 percent of teachers hold bachelor's degrees. Overall, most early childhood education and care programs fall just short of "good" on composite measures of program quality.[25]

Investing in preschool can yield tremendous economic benefits to states and the nation, but capturing those benefits will require a commitment to developing high-quality programs. When faced with limited resources, it is financially attractive to invest only in the neediest students; however, all children can benefit from high-quality preschool, and many children in the United States, including many non-poor children, do not currently have such an opportunity.

Figure 4: Thirty-nine States Have Publicly Funded Prekindergarten Programs



Source: http://www.preknow.org; W. Steven Barnett, Jason T. Hustedt, Kenneth B. Robin, and Karen L. Schulman, *The State of Preschool: 2005 State Preschool Yearbook* (New Brunswick, NJ: NIEER, 2005), Figure 9.

Chapter 2

U.S. Economic, Demographic, and Fiscal Challenges Ahead

America's economic, demographic, and social landscape has changed profoundly in the past 35 years. Technology and globalization have transformed America's powerful industrial economy into an agile and ever-evolving knowledge economy. As we advance into the twenty-first century, continued economic pressures from abroad, growth in populations traditionally completing less education, and our current unsustainable fiscal position all threaten America's economic stability and social balance. The stakes are high, but early and sustained investments in education, especially in the preschool years, will provide a strong defense, allowing the states and the nation to rise to the economic, demographic, and fiscal challenges ahead.

"The day-to-day reality of succeeding in an increasingly competitive marketplace demands skilled and educated workers. Investing in the academic success of our children directly contributes to the overall economic health of our nation."

James E. Rohr, Chairman and Chief Executive Officer, PNC Financial Services Group, Inc., CED Trustee[26]

"Our economy faces new challenges from globalization, population aging, and borrow-and-consume exhaustion. We can address all three challenges by making sure every one of our children becomes a capable young adult – healthy, educated, free, secure, and a good citizen."

Robert H. Dugger, Managing Director, Tudor Investments, CED Trustee[27]

ECONOMIC CHALLENGES

The U.S. economy is increasingly shaped by globalization and advances in technology, and knowledge is our country's competitive advantage. While trade is not new to America, competition from abroad has intensified in recent years. Companies have responded by shifting less-skilled work offshore and adopting advanced technologies that make workers more productive. With computers now performing many routine cognitive and manual jobs, much of the work that remains in U.S. workplaces involves complex or creative thinking, or interactive functions that are difficult to automate.[28]

Though globalization is detrimental to some businesses and workers, it also benefits the United States by opening up new markets for our technologically advanced goods and services. However, our edge in technology and knowledge is increasingly challenged. Companies in less developed countries now have the necessary economic and technological infrastructures to compete directly with the United States. Countries like India and China are no longer low-wage, low-tech—they are low-wage, high-tech.[29]

U.S. workplaces have adapted to sustained economic pressures by creating new knowledge-intensive jobs *and* increasing skill requirements in existing jobs. Managerial and professional workers now fill more than one-quarter of all jobs, an increase from 18 percent in 1969; fewer than one-in-four workers are now employed in blue-collar jobs.[30] At the same time, workers have become more educated. In 1973, one-third of adult workers did not complete high school; today fewer than one-in-ten adult workers are high school dropouts.* The share of college-educated workers has also more than doubled.[31] More recent

* Roughly 30 percent of students who begin high school drop out before graduating. Some earn a General Equivalency Diploma (GED), thus decreasing the share of adult "high school dropouts" (though a GED does not confer the earnings advantages of a traditional diploma). In addition, many less-educated workers are less likely to join the labor force, further decreasing the share of workers who are "high school dropouts."

competitive pressures have polarized job growth, with high-wage and low-wage jobs created at the expense of middle-wage jobs that once provided a comfortable lifestyle for many American workers.[32]

In short, the new global economy increasingly relies on information and innovation, both of which are highly knowledge intensive. Knowledge has been a major source of productivity growth in the postwar era, with growth in education boosting productivity growth by an estimated 11 to 20 percent in recent years.*[33] Increases in productivity are essential to economic growth and improved standards of living.

The challenge for states and the nation is to continue to generate high-paying jobs and an educated workforce even with increasing competition from developed and economically emergent nations. Despite a decades-long effort by states to increase student achievement, students have not demonstrated significant and widespread improvement in educational attainment or achievement. Fewer than one-third of students in fourth, eighth, and twelfth grade demonstrate proficiency in math or reading,[34] and only 31 percent of high school students complete a rigorous complement of courses.† In addition, far too many students—more than one million nationwide—do not graduate from high school within four years.[35] Graduation rates now hover around 70 percent, a significant dip from a high of 77 percent in 1969.[36] Some states face a more pronounced challenge, with nearly one in five states graduating fewer than 60 percent of their students.[37]

Academic achievement of youth in the United States also does not measure up internationally. High school students consistently score below the international average on both academic and applied assessments of reading, math, and science, and rank among the lowest of more than 20 economically competitive countries on math and science achievement.[38] Other countries are also gaining ground in higher education. The United States has slipped to ninth in the share of students enrolling in college.‡[39]

Current efforts to improve student achievement in the K-12 system are well intentioned, and, indeed, necessary. Likewise, efforts to educate and train our current workforce better are justifiable. But looking forward, the best new educational investments are those made during the preschool years, where children develop skills that lay the foundation for later learning.

DEMOGRAPHIC CHALLENGES

Favorable demographic and educational trends facilitated the United States' transition to a post-industrial knowledge economy. The baby-boom generation helped grow the labor force by almost 50 percent between 1980 and 2000. Moving more students through the educational system made simultaneous increases in the quality of the workforce possible.[40]

In the future, however, the overall size of the workforce will grow much more slowly, increasing by only about 16 percent over the next two decades as the highly educated baby-boom generation begins to retire in 2008.[41] In the coming years, it will also be more difficult to replicate improvements in the quality of the workforce. New workers are only slightly more educated than the baby boomers, and increases in educational attainment rates have slowed considerably. The college-educated labor force that increased by 107 percent between 1980 and 2000 will likely grow by less than one-third over the next 20 years.

Challenges in preparing a high-quality workforce also arise from changing family demographics.[42] More than one-quarter of children live in single-parent families, putting them particularly at risk of growing up poor and increasing the likelihood they will drop out of

* Economic growth is largely attributable to improvements in *human capital* as embodied in knowledge and skills of the workforce, *physical capital* such as investments in machinery and buildings, and *innovation* that results in new products, technologies, and work processes. Over the past century, education has been the major contributor to economic growth, improving the quality of the workforce, and allowing innovative ideas to flourish. In contrast, physical capital's effect on growth has been fairly constant. Apart from increased investments in technology in the mid-1990s, rates of investment in physical capital have essentially remained unchanged for most of the twentieth century. [J. Bradford DeLong, Claudia Goldin, and Lawrence F. Katz, "Sustaining U.S. Economic Growth," in H. Aaron, J. Lindsay, and P. Nivola, eds., *Agenda for the Nation* (Washington, DC: Brookings Institution, 2003), pp. 17-60]

† The National Commission on Excellence in Education recommends four courses in English, three social studies courses, three science courses, three math courses, two foreign language courses, and a one-semester course in computer science.

‡ The United States still has the largest share of adults holding bachelor's degrees, but it has dropped to second, behind Norway, in the share of young adults, age 18 to 24, holding bachelor's degrees.

school.*[43] Economic changes have also increased the likelihood that children in one- *and* two-parent families will need high-quality early childhood education and care. About 60 percent of all children spend some of their day in non-parental care.[44] Because early environments have a significant impact on child development and learning, increasing numbers of children cared for outside the home or in economically disadvantaged households raises the importance of high-quality early education programs.[45]

The challenge for states and the nation is to increase the quality of the U.S. workforce despite demographic trends biased against such improvements. Projections suggest that minorities will account for the largest population increases in the coming years, meaning labor force growth will come primarily from workers who tend to have lower levels of educational attainment. Without improvements in educational attainment rates, shifting demographics alone are expected to increase the percentage of working-age high school dropouts from 16.1 to 18.5 percent, with an offsetting decline in the percentage of more educated working-age residents.[46]

Current disparities in students' educational achievement and attainment are cause for concern. Only one-in-ten Hispanic and one-in-twenty Black fourth-grade students demonstrate proficiency in math.[47] It is particularly troubling that roughly one-half of Black and Hispanic students drop out of high school.[48]

Children in classrooms today are also racially and ethnically diverse—35 percent of students are minorities compared with just 28 percent of the total population.[49] Improving the educational prospects of America's growing minority population presents an opportunity for the United States to gain a competitive advantage over other industrialized nations. Unlike many European countries, the U.S. population continues to grow, and people are a resource vital to economic growth. Early childhood investments can pay off as a slight bulge in the youth cohort emerges over the next 20 years. Improving the educational experiences of an increasingly diverse cohort of children, or not, will determine their ability to contribute to our economy and society.

FISCAL CHALLENGES

The current fiscal situation of the United States threatens future economic growth and stability. By 2013, the cumulative 10-year budget deficit is expected to exceed $2 trillion, with annual budget deficits of $300 billion to $400 billion thereafter.†[50] The cumulative effects of budget deficits, increased health and retirement spending associated with an aging population, and spiraling interest payments will cause our federal debt to explode from 40 percent of GDP in 2005 to more than 100 percent of GDP by 2040. Continuation of uncontrolled deficits will reduce investment, productivity growth, and our standard of living.‡

These developments leave a dismal fiscal outlook, especially for future generations of children. In 2006, the present value of the fiscal gap§—the difference between future revenues and outlays, including current debt—was estimated to be as high as $50 trillion dollars, with most of the imbalance attributable to future Social Security, Medicare, and Medicaid commitments.[51] The gap can be eliminated by raising

* Decades-long increases in births to unmarried mothers, accompanied by a divorce rate that rose rapidly in the 1970s and 1980s before leveling off in the 1990s, have given rise to an increasing number of single-parent families. Today, 28 percent of children reside in single-parent families, up from just 20 percent in 1980. ["Births to Unmarried Women," *America's Children: Key National Indicators of Well-Being 2005*, available at <http://www.childstats.gov/americaschildren/pop7.asp.> Accessed May 12, 2006]

† While the federal budget deficit equaled about 3 percent of GDP in 2004, it is projected to rise to nearly 10 percent of GDP by 2035, even with severe spending restraints in Medicare and Medicaid.

‡ Productivity is the key to long-term economic growth and rising standards of living because it allows the country to produce more goods and services with fewer resources. When deficits are financed though domestic savings, there is less money available to invest in activities and equipment such as education, research and development, computers, transportation equipment, or new factories and offices that make workers more productive. Deficits tend to raise interest rates, decrease U.S. investments abroad, and increase the share of foreign-owned assets in the United States, all possible threats to the stability of our economy. [Committee for Economic Development, *Exploding Deficits, Declining Growth: The Federal Budget and the Aging of America* (Washington, DC: Committee for Economic Development, March 2003); Committee for Economic Development, *A New Tax Framework: A Blueprint for Averting a Fiscal Crisis* (Washington, DC: Committee for Economic Development, 2005)]

§ Estimates of fiscal imbalance, or gap, offer a more comprehensive measure of fiscal health than traditional measures, such as deficits and debt, which only account for past federal tax and spending policies. Fiscal imbalance estimates include current levels of debt, but also account for future outlay obligations relative to the resources to meet them under current laws.

taxes—more than doubling taxes on wages, for instance—or by dramatically reducing benefits—such as cutting Social Security and Medicare benefits by almost 50 percent.[52] Absent these drastic policy measures, today's children will bear the burden of our current policy choices as resources are transferred from future generations to the current adult population.[53] To pay for our current spending, male children born today will need to contribute at least $150,000 (in present-value dollars) more in taxes than they will receive in benefits; the burden for females is only about one-third as large because they have lower earnings and pay less in taxes.[54]

Past increases in Social Security, Medicare, Medicaid, and interest on the debt have been largely offset by decreases in defense spending, but it is unlikely that this offset will continue. The share of federal expenditures available for other domestic programs, such as education, is in danger of being squeezed ever further unless entitlement programs or taxes are reformed. By 2012, children's and other domestic programs would have to be eliminated to balance the federal budget.[55]

States also face tight budgets. After a decade of increased spending during the economic boom of the 1990s, a downturn in the economy cut revenues, and states suffered budget shortfalls. States have slashed spending and closed a fiscal gap of more than $265 billion since 2001, but their fiscal positions are likely to remain tight as spending for Medicaid, education, and corrections grows. Nearly one-half of states have "structural deficits" where ongoing revenue cannot support ongoing spending commitments.[56]

The challenge for states and the nation is to improve their near- and long-term fiscal positions without reducing investments in education that will ultimately boost productivity and our financial outlook. Righting the fiscal imbalance will require comprehensive policy measures that raise tax revenue while reducing expenditures. To put the budget on a sound footing by 2075, the approximate lifespan of a child born today, the country will have to reduce spending or increase taxes by roughly $500 billion a year, approximately equal to 5 percent of GDP.[57] Persistent federal deficits in an expanding economy suggest that the country cannot simply "grow our way out of the deficit." Absent investments in education, the aging of the U.S. population will likely reduce economic growth. It is crucial that programs for children receive dedicated funding in the federal budget to bolster our economy.

Improvements in education can produce savings in health, crime, and social welfare and help both federal and state governments balance their budgets. For example, improving high school dropout rates could save as much as $11 billion annually in welfare, food stamp, and housing assistance.[58] Boosting the high school completion rate of adult men by just 1 percent would save up to $1.4 billion a year in crime costs.[59] Furthermore, providing a single cohort of high school dropouts with one more year of education would generate nearly $42 billion in health care savings, enough to provide every child with a seat in a prekindergarten classroom.[60]

Increased educational investments also boost revenues because high school dropouts are less likely to work, and those who do work are likely to work fewer weeks each year and to have lower earnings. America loses about $192 billion in income and other tax revenues with each cohort of high school dropouts. Increasing the educational attainment of those students by one year would recoup about one-half of the losses.[61]

High-quality preschool programs fill a critical need in the long-term educational investment strategy for the U.S. economy. High-quality preschool programs provide the kinds of early learning environments that help improve academic achievement and attainment in the K-12 and postsecondary school years, and the quality of the workforce. Early interventions will ultimately allow the United States to cultivate the productive, innovative workforce upon which its future economic growth depends.

Chapter 3

The Benefits of Preschool

WHY PRESCHOOL?

Under current education policies, many students begin kindergarten less prepared than their classmates. However, children who attend center-based preschool programs in the year before kindergarten are better prepared to attend school.[64] The most productive new educational investments will be those dedicated to preparing children for school, rather than those aimed at remediation of past academic deficiencies. Unless children come to school ready to learn, precious educational dollars will continue to be wasted.

"Kids who have access to prekindergarten have a better chance to succeed in school, get into college, and get a good-paying job later in life. However, we also know that too many of our children begin school under-prepared. Instead of a head start in life, they're too often already a step behind. The achievement gap in our schools exists for many kids before they even start kindergarten."

New Mexico Governor **Bill Richardson**[62]

"The later in life we attempt to repair early deficits, the costlier the remediation becomes."

James J. Heckman, Henry Schultz Distinguished Service Professor of Economics, University of Chicago, and 2000 Nobel Laureate in Economics [63]

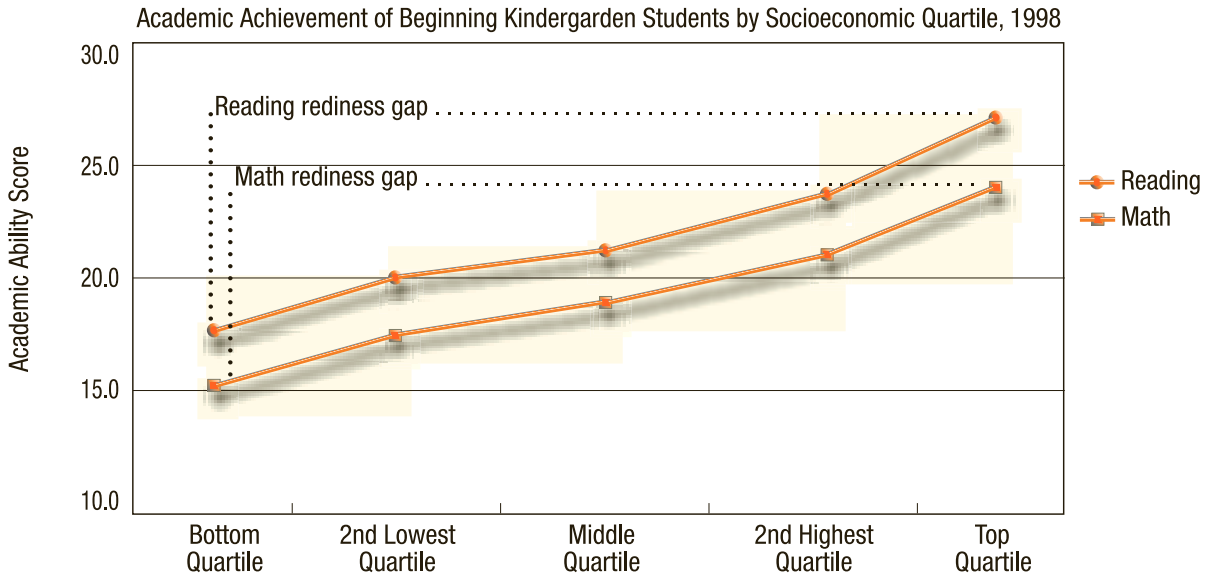
Disparities in student achievement already appear by kindergarten. Children growing up in adverse environments often begin school at a disadvantage because they are less likely to receive education at home that prepares them for school. Children who live in poverty, with a single parent, or with a parent that does not speak English, are less likely to have a story read or told to them. Only 10 percent of preschool-aged children in poverty know all of the letters of the alphabet, compared with 28 percent of non-poor children. Only 40 percent of poor preschool-aged children can count to 20 or write their name.[65]

Beginning kindergarten students from low-income families demonstrate reading, mathematics, and general knowledge skills that are as much as 60 percent lower than students from well-off families (see Figure 5). Although student performance improves as family income rises, students from middle-class, and even upper-middle-class, families are less prepared for school than children from the most advantaged families. The academic achievement of advantaged students exceeds that of middle-class children by about 25 percent, even before they begin kindergarten.*[66] Kindergarten students from less-advantaged backgrounds also perform more poorly on other measures of school readiness, including social skills, health, and approaches to learning.[67]

Learning is a cumulative process. Many of the building blocks of learning are developed in the years between birth and age five.[68] In their early years, children develop both cognitive and social skills upon which they must rely as they progress through childhood and adulthood. There are critical periods of development, where it is essential that certain skills are taught, as well as sensitive periods of development, when it is easiest to teach these skills.

* Minority students also demonstrate lower academic achievement, on average, than other beginning kindergarten students. Black and Hispanic kindergarten students' math skills are approximately 20 percent lower than their White classmates. Moreover, about one-half of the Black-White test score gap in the twelfth grade is already present in the first grade. [Valerie E. Lee and David T. Burkam, "Inequality at the Starting Gate: Social Background Differences in Achievement as Children Begin School" (Washington, DC: Economic Policy Institute, 2002), pp. 15-17; Meredith Phillips, James Crouse, and John Ralph, "Does the Black-White Test Score Gap Widen After Children Enter School?" in C. Jencks and M. Phillips, eds., *The Black-White Test Score Gap* (Washington, DC: The Brookings Institute, 1998), pp. 229-272]

Figure 5: Children Begin Kindergarten With Large Disparities in Academic Preparation



Source: Valerie E. Lee and David T. Burkam, "Inequality at the Starting Gate: Social Background Differences in Achievement as Children Begin Schoool" (Washington, DC: Economic Policy Institute, 2002).

As these critical and sensitive periods of development pass, it becomes increasingly difficult to remediate for earlier educational deficiencies because, in essence, "early learning begets later learning, and early success breeds later success."[69]

Educational gaps are often difficult and costly to correct. Attempts to correct early educational deficits, while possible, are difficult if children lack the foundation skills upon which to build. Early differences in academic and social behaviors tend to persist over time, rather than narrowing during the K-12 years. For instance, a 15 percentage point gap in mathematics achievement between six-year-old students in the top and bottom quartiles of family income increased to nearly 25 percentage points by the time the students were 12 years old. Measures of antisocial behavior show similar gaps that also persist as children age.[70]

As a result, policy measures to "fix" skill deficiencies, as is the premise of the No Child Left Behind Act, high school reform, and various other adult education and training programs targeted towards dislocated workers, welfare recipients, and other disadvantaged populations, have proven difficult.[71] Likewise, high levels of college remediation and low rates of college completion suggest that efforts to increase our college-educated workforce by making college more affordable and accessible will meet limited success without simultaneous efforts to improve student preparation.[72]

Furthermore, investing during the preschool years confers the benefits of time. Investing early provides many more years across which to recoup the cost savings from the initial investment. But while early education is crucial to human capital development, it is not an inoculation against subsequent academic and lifelong difficulty. High-quality preschool programs will be most effective when they are preceded by quality early childhood experiences and environments from birth through age three, and complemented by continued investments in high-quality elementary, secondary, and postsecondary education.

THE LIFELONG EFFECTS OF PRESCHOOL

A number of high-quality early childhood education programs have proven to cultivate student success in school and later in life. While many studies have evaluated the early academic and educational outcomes of students in preschool programs, the strongest evidence on the long-term effectiveness of preschool programs comes from studies that

rigorously evaluated a small number of high-quality preschools enrolling disadvantaged children, including Perry Preschool, the Chicago Child-Parent Study Centers, as well as the more intensive Carolina Abecedarian program that provided high-quality early childhood education and care from birth through age five (see Box 1). Each of these programs also included a strong parent component (home visits or classroom participation) to advance the children's education and social development.

Preschool Programs with Long-term Evaluations

The most consistent findings from rigorously evaluated preschool programs indicate that high-quality early education programs can have positive effects on students' learning and achievement, educational attainment, and work experience, as well as limit their participation in crime.

Cognitive and Non-cognitive Abilities. High-quality preschool programs boost students' cognitive and non-cognitive abilities. A variety of different preschool programs—including the small model programs like Perry Preschool and Carolina Abecedarian, as well as large-scale programs like Head Start, Chicago Child-Parent Centers, and many state prekindergarten programs—suggests that preschool can increase students' IQ and improve academic achievement.[73] Despite the early benefits of high-quality preschool on

Box 1: Early Education Programs with Long-term Evaluations

Carolina Abecedarian Early Childhood Intervention: Between 1972 and 1977, 111 infants who were determined to be at high risk for school failure based on a number of parental and family circumstance factors were enrolled in the Carolina Abecedarian program. The infants, who were primarily African American, either received early care and education services from the age of six weeks through age 5, or were assigned to the control group. In both the child-care and preschool components, special curricula were developed focusing on language development, and the classrooms had very low child/teacher ratios and teachers with bachelor's degrees. The program participants were followed through adolescence and, most recently, at age 21. The Carolina Abecedarian program enrolled children earlier in the lifecycle than other preschool programs, and the longevity of its follow-up provides valuable information on the long-term effects of sustained early education interventions.

Chicago Child-Parent Centers: The Chicago Child-Parent Centers (CPC) are publicly funded preschool centers in high-poverty neighborhoods serving low-income three- to five-year-olds that began operating in 1967 and continue today. The children attend preschool three hours per day during the school year, and receive reading and math instruction by well-qualified public school teachers with small class sizes. The quasi-experimental Chicago Longitudinal Study follows a cohort of 1,539 students (primarily African American) who attended kindergarten in 1985-1986. Of the children in the cohort, 989 attended a CPC center for one or two years prior to kindergarten, while the other 550 did not attend a CPC program (and less than one-quarter of this group attended any preschool). The most recent student follow-up was conducted when the children were age 20 or 21.

Perry Preschool Project: The High/Scope Perry Preschool Project provided high-quality preschool experiences for a small number of disadvantaged three- and four-year-old African-American children in Ypsilanti, Michigan, between 1962 and 1967. The 123 children in the study were born into poverty and at high-risk for failing in school. The treatment group received a high-quality preschool education for 2.5 hours each day during the school year, in addition to a 1.5 hour home visit each week, while the control group was not provided any program services. All Perry Preschool teachers had bachelor's degrees and earned 10 percent more than kindergarten teachers in the same school. The program participants were followed throughout their youth and adult years, with the most recent follow-up at age 41.

IQ, increased IQ is not the primary determinant of successful preschool programs. In fact, early gains in student IQ levels tend to be short-lived, with most advantages fading out by the time students are in the first or second grade.*[74]

The limited IQ advantages in students' early years contrast with more persistent effects in educational achievement and attainment, suggesting IQ alone does not determine educational success. High-quality preschool programs can have long-lasting effects on student academic achievement, typically in math and reading, well into the high school years (see Table 1). Students who participated in the Perry Preschool program even showed an advantage in early adulthood, with better problem-solving skills than their peers who did not participate in the program.[75]

While cognitive factors such as IQ and academic achievement are easiest to measure, non-cognitive skills, such as motivation, perseverance, and social interaction are equally important in educational and life success. Non-cognitive skills are also likely to contribute to improved academic achievement since students with high levels of motivation and perseverance tend to perform better in school.[76] Direct measures of non-cognitive skills in the Chicago Child-Parent Centers program show that students performed better on a life skills test administered in eighth grade than did a similar group of non-program students.[77] The widespread non-academic benefits attributable to high-quality preschool programs, such as better employment situations and behavioral outcomes, suggest that preschool has a significant effect on students' non-cognitive skills.[78]

School Experiences. High-quality preschool programs improve students' schooling experiences and increase the likelihood of graduating from high school. Students who attend preschool tend to have more positive learning experiences in their elementary and secondary school years, with fewer students requiring special education classes or being retained in grade.[79] Preschool has been shown to reduce special education use by about 12 percent, on average.†[80] Reducing special education enrollments is particularly beneficial to state education budgets because it costs roughly twice as much to educate each child enrolled in a special education class.[81] Preschool also reduces grade repetition by about 21 percent, an effect almost twice as large as on special education.‡[82] However, the cost of repeating one grade (about $7,700 per student) is rather small relative to the cost of special education, which can extend over several years.

Because high school graduates have better employment and earnings prospects than high school dropouts, preschool's impact on students' educational attainment is particularly important. Among those high-quality preschool programs that were rigorously evaluated and whose students were followed to the end of high school, dropout rates were reduced by about 25 percent.§[83] Preschool's positive effect on several risk factors for dropping out of high school—low academic achievement, special education needs, and grade retention—further suggest that high-quality preschool should significantly boost high school graduation rates.

Preschool may improve the likelihood that students enroll in college. For instance, students in the Abecedarian program were more likely to enroll in college, and twice as likely to still be enrolled in school at age 21.[84]

Labor Market Outcomes. High-quality preschool programs boost students' earnings and employment in adulthood. The Perry Preschool program provides the best direct evidence of the long-term positive effects of

* Encouraging better IQ outcomes may require complementary investments along the educational continuum. More intensive programs that start earlier in children's lives, such as the Abecedarian program, may be more effective in producing lasting effects on IQ. Schooling environment in the post-preschool years may be equally important in permanently boosting IQ. The poor quality of the elementary schools that many disadvantaged children attend may not foster the early IQ gains they have demonstrated, and may constrain future advantages. [W. Steven Barnett, "Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes," *The Future of Children*, vol. 5, no 3 (Winter 1995); Janet Currie, "Early Childhood Education Programs," *Journal of Economic Perspectives* (2001) vol. 15 issue 2, pp. 213–238]

† Preschool's effect on reducing special education services ranges from 6 to 48 percent.

‡ Preschool's effect on reducing grade repetition ranges from 6 to 23 percent.

§ Reductions in high school graduation rates range from 18 to 36 percent.

Table 1: Early Education Programs Have Long-term Effects

	Carolina Abecedarian[1,3]	Chicago Child-Parent Centers[2]	High/Scope Perry Preschool[1]
	Treatment vs. Control Group		
Cognitive Outcomes			
IQ	94 vs. 88* at age 12	95 vs. 83* at age 6	91 vs. 88* at age 7
Achievement	93 vs. 82* Math achievement at age 15	147 vs. 142* Reading achievement at age 14	6.0 vs. 5.2* Problem solving at age 27
Educational Outcomes			
Special Education Placement	24% vs. 48%*	14% vs. 25%*	15% vs. 35%*
Grade Retention	31% vs. 55%*	23% vs. 38%*	35% vs. 40%
High School Completion	70% vs. 67%	62% vs. 51%*	65% vs. 45%*
Crime Outcomes			
Arrests/Convictions	8% vs. 12% at age 21[4]	17% vs. 25%* at age 18	33% vs. 48%* at age 40[5]
Child Abuse and Neglect	n/a	5% vs. 10%* at age 18	n/a
Employment and Earnings			
Employed	64% vs. 50% at age 21	n/a	76% vs. 62%* at age 40
Employed in Skilled Jobs	67% vs. 41%* at age 21	n/a	n/a
Monthly Earnings	n/a	n/a	$1,856 vs. $1,308* at age 40

1. Model program, randomized treatment and control groups.
2. Large-scale program, matched treatment and control groups.
3. Program began while children were in infancy.
4. Convicted of a felony.
5. Arrested for a violent crime.

* Difference between treatment and control groups is statistically significant at the .05 level.

Sources: Frances A. Campbell, Craig T. Ramey, Elizabeth Pungello, Joseph Sparling, and Shari Miller-Johnson, "Early Childhood Education: Young Adult Outcomes From the Abecedarian Project," *Applied Developmental Science*, vol. 6, no. 1 (2002); Leonard Masse and W. Steven Barnett, "A Benefit-Cost Analysis of the Abecedarian Early Childhood Intervention" (New Brunswick, NJ: NIEER, 2002); Arthur J. Reynolds, Judy A. Temple, Dylan L. Robertson, and Emily A. Mann, "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers,"*Educational Evaluation and Policy Analysis*, vol. 24, no. 4 (Winter 2002); Lynn A. Karoly and James H. Bigelow, *The Economics of Investing in Universal Preschool Education in California* (Santa Monica, CA: RAND Corporation, 2005); Lawrence Schweinhart, *Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40* (Ypsilanti, MI: High/Scope Educational Research Foundation, 2004).

preschool on mid-career employment experiences.* Perry Preschool students were more likely to be employed at age 40 and had higher earnings than adults of similar background who had not participated in the program as children. Perry Preschool students also performed better on other indicators of economic stability, such as owning a home, owning a car, maintaining a savings account, and being financially independent.[85] Abecedarian students were also more likely to be employed in skilled jobs at age 21, though their lifetime employment rates were similar to those of adults who had not participated in the program.[86]

Despite additional direct evidence (because few studies follow children into adulthood), it is reasonable to expect that other high-quality preschool programs would produce similar employment-related benefits. Better educated and skilled workers are more likely to enter the labor force, are less likely to be unemployed, and are more likely to have higher earnings.

In addition to improving the employment outlook for preschool participants, early childhood education and care can also improve the employment situation of their mothers. The Abecedarian program and other early childhood intervention programs show that participants' mothers are more likely to be employed, work in skilled jobs, and have higher earnings.[87] The impact of preschool programs can be broadened if other children in the home benefit from parents' improved employment circumstances.

Crime Outcomes. High-quality preschool is an effective crime-deterrent program, providing an opportunity to prevent criminal behavior before it begins rather than relying on later rehabilitation. Students who attend high-quality preschool programs are less likely to be arrested as juveniles, with the effects persisting into adulthood.[88] Even when involved in crime, preschool students are less likely to become violent, hardened criminals. As a result, students who attend preschool are also less likely to be sentenced to prison or jail and serve fewer months if incarcerated.

High-quality preschool programs may also make children's home environments safer and reduce the likelihood that the children will become victims of crime. For instance, the incidence of child abuse or neglect among children in the Chicago Child-Parent program was nearly one-half that of similar children who did not participate.[89]

The cost savings associated with reduced criminal behavior among preschool students is large. The savings from crime in the Chicago Child-Parent Centers program are estimated at $6,000 per student, while the savings in the Perry Preschool program, which include the intangible costs of crime, are estimated to be about $47,000 per student.[90]

Social Welfare and Health Outcomes. The effect of preschool programs on broader social outcomes is encouraging.[91] Students in Perry Preschool were less likely to receive social services, particularly welfare assistance or family counseling, and students in the Abecedarian program were also less likely to become teenage parents. Preschool may also affect students' future health and well-being, although overall, there are not large differences between students who attended preschool and those who did not. Nevertheless, students in the Perry and Abecedarian programs were less likely to use soft drugs, and students in the latter program were less likely to smoke. Perry Preschool students were also less likely to have stopped work because of health issues. Broader studies positively link higher levels of educational attainment to better health and healthy behaviors, such as less smoking.[92]

Head Start

Evaluations of public programs also have shown that early education can boost children's early academic achievement. Perhaps the best-known preschool program, the federally funded Head Start program, was recently evaluated using the gold-standard of evaluation, randomized design. First-year findings show Head Start's impacts on early

* Few other studies follow students far enough into their adult years to directly measure their impact on various labor market and social outcomes. While two studies follow students into their early twenties, the Chicago Child-Parent Centers program did not investigate employment experiences, and there were no significant employment effects in the Abecedarian program, which is not unexpected since students may still be in school or navigating their way through intermittent early work experiences. [Francis A Campbell, Craig T. Ramey, Elizabeth Pungello, Joseph Sparling, and Shari Miller-Johnson, "Early Childhood Education: Young Adult Outcomes From the Abecedarian Project," *Applied Developmental Science*, no. 6, (2002), pp. 42-57; Reynolds and others, "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers," pp. 267-303]

achievement are encouraging, though mixed.[93] Head Start children demonstrated a small-to-moderate advantage in reading, writing, and vocabulary over similar children who did not participate in the program. However, Head Start children displayed no added advantage in mathematics achievement, and four-year-old participants did not demonstrate better health outcomes or socio-emotional skills. For children who entered the program as three-year-olds, however, there were small improvements in their behavior, health, and the child-rearing styles of their parents. Though children in both the Head Start program and the comparison group continued to demonstrate skills that were significantly lower than U.S. children as a whole, the achievement gap in pre-reading was almost cut in half among Head Start participants, while the gap in pre-writing skills was reduced by 28 percent.

Long-term effects of Head Start have been reported from careful statistical analyses and show benefits for some groups of children. For instance, White and Hispanic students performed better on achievement tests and were less likely to be retained in grades than similar students who did not participate in Head Start.[94] Likewise, White Head Start students were more likely to graduate from high school, enroll in college, and have higher earnings than non-participants, while African-American participants were less likely to be arrested.[95]

The moderate impacts of Head Start are likely a result of lower teacher qualifications. Sixty-five percent of Head Start teachers do not hold bachelor's degrees, and they are only paid about $25,000 per year, roughly one-half the salary of public school teachers.[96]

State Prekindergarten Programs

The outcomes from state-funded prekindergarten programs are also encouraging. While none of the 13 evaluated state programs provide information on their long-term effects, the positive effects on early academic achievement and educational outcomes suggest there may be long-lasting impacts.[97] Most states studied showed some significant effect on overall development as well as math and reading achievement, although the effects were rather small.* Furthermore, one-half of the states that reported on achievement continued to show an advantage through the third or fourth grade. Most of the states that reported on attendance and grade retention also saw significant benefits, often extending through the third grade. However, these state programs showed little effect on special education referrals and placements.

More rigorous program evaluations in Georgia and Oklahoma, where a majority of four-year-olds participate in state prekindergarten programs, show that the programs can produce academic gains for all students.[98] Additional evaluations of five state programs using a rigorous research design similar to that used in Oklahoma, showed an eight percent increase in vocabulary scores, a 13 percent increase in math scores, and a 39 percent increase in letter identification and word concepts across the five states.[99]

EXTENDING THE BENEFITS

Conclusions about broader educational, economic, and societal benefits of preschool are primarily drawn from the small number of high-quality, rigorously evaluated and designed studies that offer the advantage of long-term student follow-ups. Though children in these studies were educationally at-risk, it is reasonable to expect that more than just poor children can benefit from high-quality early learning experiences.

The academic gains from preschoolers in two states with widely available programs show that the benefits can extend across diverse groups. In Oklahoma's universal program, students participating in Tulsa classrooms showed gains in academic achievement across all racial/ethnic and socioeconomic groups, although disadvantaged children demonstrated the largest gains.[100] Georgia state prekindergarten students also made significant gains on most academic measures that were similar to the gains of more disadvantaged Georgia Head Start students and more advantaged private preschool students; they began kindergarten equally prepared as private preschool students and more prepared than Head Start students.[101]

Moreover, because educational maladies extend beyond just poor students, it is expected that

* None of the state program evaluations used randomized control groups, and many have methodological design flaws that may bias the results. [Walter S. Gilliam and Edward F. Ziegler, "State Efforts to Evaluate the Effects of Prekindergarten 1977-2003" (New Haven, CT: Yale University Child Study Center, 2004)]

preschool impacts will extend to more advantaged students. Poor students are more likely to repeat a grade, enroll in special education, and drop out of high school, but more than one-half of these educationally at-risk students come from middle-class, rather than poor, households (see Table 2).

Improving the education and employment outcomes for one generation of students may also benefit subsequent generations and whole communities. There appear to be reasonably strong intergenerational effects on income, crime, welfare, and educational attainment.[102] Children raised in families with well-educated parents and high incomes are more likely to pursue additional schooling and have higher earnings. Likewise, children raised in households receiving welfare, or by parents who participate in crime, are more likely to participate in these activities. Extending the positive benefits of preschool programs to an entire community of students, and subsequent generations of their families, could have far-reaching implications for society.[103]

Table 2: Incidence and Share of Educational Outcomes by Income

	Special Education[1]	Grade Retention[2]	School Dropouts[2]
Household Income	***Share of Students in Each Income Group With Educational Outcome***		
High	6%	9%	3%
Medium	12%	13%	12%
Low	17%	18%	23%
Total	11%	13%	12%
	Distribution of Students in Each Income Group With Educational Outcome		
High	13%[3]	15%	5%
Medium	51%	56%	54%
Low	36%	28%	40%
Total	100%	100%	100%

1. Data are for 1999.

2. Data are for 1995.

3. Shows the distribution of students receiving special education, rather than the distribution of special education within the total student population.

Source: Lynn A. Karoly and James H. Bigelow, *The Economics of Investing in Universal Preschool Education in California* (Santa Monica, CA: RAND Corporation, 2005), Tables 2.4 and 2.6, pp. 44-46.

Chapter 4

The Economic and Fiscal Benefits of Preschool

The lasting effects that high-quality preschool programs have on individual children often extend to the broader society, translating into significant benefits for states and the nation. Of course, today's preschoolers have at least 15 more years before joining the workforce, so many of the economic benefits from these childhood investments come later. In the interim, investments in high-quality preschool can generate significant cost savings to the taxpaying public, particularly in the areas of education and juvenile crime, and lead to increased tax revenues from the parents who can work more when their children enroll.

"Early child development is economic development with a very high public return. I want to stress that it's a public return. I want to stress that it's an economic return."

Arthur J. Rolnick, Senior Vice President and Director of Research, Federal Reserve Bank of Minneapolis[104]

SOCIAL BENEFITS OF PRESCHOOL PROGRAMS

Extending preschool's impact on individual student achievement, educational attainment, labor market outcomes, and criminal activity across a whole generation of children provides widespread economic and fiscal benefits that exceed the costs of preschool programs. Though the benefits may be recouped over many years, their lifetime value is presented in net present-value dollars throughout this chapter.

Cost-effectiveness of Small-scale, Targeted Programs

Investments in preschool programs are strongly justified by the favorable returns from high-quality programs targeted toward disadvantaged children. Benefit/cost analyses for the Carolina Abecedarian, Chicago Child-Parent Centers, and Perry Preschool programs, and a meta-analysis reviewing more than 50 programs, suggest they generate $2 to $16 in benefits for every dollar invested (see Table 3). Viewed another way, the large-scale Chicago Child-Parent Centers program generated more than $40,000 in benefits per student enrolled, and other more intensive programs generated even larger benefits.* The largest net benefits per student accrue from reducing crime among boys, and boosting the earnings of girls.[105] Those programs that demonstrate the largest effects on crime have the largest benefits accruing directly to taxpayers.†

Overall, these targeted preschool programs provide an annual return on the initial investment of about 7 to 18 percent. Just the *public* return to the Perry Preschool program exceeds 12 percent.[106] To put these

* The extraordinary net benefits from the Perry Preschool program are, in part, a result of including the savings from reducing the victim cost of crime. When only including the direct cost savings from reductions in criminal activity, the returns from Perry Preschool are more in line with the other programs. [Lynn A. Karoly and James H. Bigelow, *The Economics of Investing in Universal Preschool Education in California* (Santa Monica, CA: RAND Corporation, 2005)]

† Of the public returns on investment in the Perry Preschool study, the majority of savings (88 percent) came from reductions in crime. Education savings account for 4 percent of savings. Increased taxes from higher earnings account for 7 percent of the savings, and the remaining 1 percent come from savings in welfare payments. Of the public return in the Chicago Child-Parent Centers program, reductions in crime and its associated costs also provided the majority of the benefits (52 percent), while increased tax revenues from earnings accounted for 28 percent of benefits, and savings on school remediation accounted for the remaining 18 percent. Unlike the other model programs, the majority of benefits in the Abecedarian program (more than 80 percent) accrue to the individuals. Because the Abecedarian program did not significantly reduce criminal activity, the public benefits were limited to reductions in K-12 spending, better health, and lower welfare payments. [Clive R. Belfield, Milagros Nores, Steve Barnett, and Lawrence Schweinhart, "The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Follow-Up," *Journal of Human Resources,* vol. 41 issue 1, pp. 184-186; Arthur J. Reynolds, Judy A. Temple, Dylan L. Robertson, and Emily A. Mann, "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers," *Educational Evaluation and Policy Analysis*, vol. 24, no. 4 (Winter 2002), pp. 267-303; Leonard Masse and W. Steven Barnett, "A Benefit-Cost Analysis of the Abecedarian Early Childhood Intervention" (New Brunswick, NJ: NIEER, 2002)]

returns in context, they exceed the 7 percent rate of return suggested for government programs by the Office of Management and Budget; they also exceed the historic real rate of return in the stock market of approximately 6 percent.[107]

Estimated Returns from Widely Available Programs

Although there is insufficient evidence to measure the long-term benefits of universally available preschool programs (like those in Oklahoma and Georgia, as opposed to programs targeted only to disadvantaged children), simulations suggest that expanded public preschool programs available to all children will also be a cost-effective investment, paying more than $2 in benefits for every dollar invested (see Table 4).

While expanded programs likely have lower benefit/cost ratios than targeted programs, the total value of the benefits is expected to be larger because many more students benefited. Enrolling students for

Table 3: Benefit Cost Analysis for Preschool Programs

	Total benefit	Total cost	Net benefit	Benefit/ cost ratio	Distribution of benefits among…		Internal rate of return
	Per child (discounted at 3%)				Taxpayers	Participants	
Carolina Abecedarian (2002 dollars)	$135,546	$35,864	$99,682	3.78	14%	86%	7%
Chicago CPC (1998 dollars)	$47,759	$6,692	$41,067	7.14	54%	46%	10%
Perry Preschool Age 40 follow-up (2000 dollars)	$244,811	$15,166	$229,645	16.14	80%	20%	18%
Meta-analysis (2003 dollars)	$17,202	$7,301	$9,901	2.36	62%	38%	n/a

Sources: Milagros Nores, Clive R. Belfield, W. Steven Barnett, and Lawrence Schweinhart, "Updating the Economic Impacts of the High/Scope Perry Preschool Program" *Educational Evaluation and Policy Analysis*, vol. 27, no. 3 (Fall, 2005); Clive R. Belfield, Milagros Nores, Steve Barnett, and Lawrence Schweinhart, "The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Follow-Up," *Journal of Human Resources,* vol. 41, issue 1 (2006); Leonard Masse and W. Steven Barnett, "A Benefit-Cost Analysis of the Abecedarian Early Childhood Intervention" (New Brunswick, NJ: NIEER, 2002); Lynn A. Karoly and James H. Bigelow, *The Economics of Investing in Universal Preschool Education in California* (Santa Monica, CA: RAND Corporation, 2005); Steve Aos, Roxanne Lieb, Jim Mayfield, Marna Miller, and Annie Pennucci, *Benefits and Costs of Prevention and Early Intervention Programs for Youth* (Olympia, WA: Washington State Institute for Public Policy, 2004); Arthur J. Reynolds, Judy A. Temple, Dylan L. Robertson, and Emily A. Mann, "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers," *Educational Evaluation and Policy Analysis,* vol. 24, no. 4 (Winter 2002).

Table 4: Estimated Benefits of Universal Preschool Programs

	United States 3- and 4-year-olds			California 4-year-olds
Target population	Universal 80% enrolled	Targeted 20% enrolled		Universal 70% enrolled
		50% accurate[1]	80% accurate[2]	
	(in billions)			(in billions, 2003 dollars)
Net Present-Value Benefit	$150.8	$67.4	$83.5	$2.7
Benefit/Costs Ratio	3.42	6.39	7.68	2.62

1. Assumes 50% of participating students are poor and receive the full benefit and 50% of participating students are not poor and thus receive only one-half of the total benefit.

2. Assumes 80% of participating students are poor and receive the full benefit and 20% of participating students are not poor and thus receive only one-half of the total benefit.

Note: The methodology for the United States includes all children enrolled in preschool while the methodology for California only calculates the net benefit from new preschool spending.

Sources: W. Steve Barnett, "Maximizing Returns for Prekindergarten Education," Federal Reserve Bank of Cleveland, in Federal Reserve Bank of Cleveland Research Conference: Education and Economic Development (Cleveland, OH: Federal Reserve Bank of Cleveland, 2004); W. Steve Barnett, "Research on the Benefits of Preschool Education: Securing High Returns from Preschool for All Children" (presented at the 2nd Annual Conference on "Building the Economic Case for Investments in Preschool," New York, NY, January 10, 2006); Lynn A. Karoly and James H. Bigelow, *The Economics of Investing in Universal Preschool Education in California* (Santa Monica, CA: RAND Corporation, 2005), Table 3.3, p. 102.

two years in a high-quality program like Perry Preschool, even assuming smaller benefits for more advantaged students,* could still generate as much as $150 billion dollars in net present-value benefits; targeted programs with higher benefit/cost ratios are expected to generate roughly one-half that amount.[108]

Simulated expansion of a preschool program for all children in a single state, California, also indicates universally available programs are a cost-effective investment, generating $2.62 for every dollar invested.[109] Relying on more conservative findings (from the Chicago Child-Parent Centers program), a publicly funded, part-day, part-year preschool program for all California four-year-olds is estimated to generate nearly $7,000 in net present-value benefits for every child enrolled. About $2.7 billion in net present-value benefits would be generated from one year of student participation, providing an annual return on investment of 10 percent over 60 years. These benefits are conservative because they do not include the intangible costs of crime, such as victim suffering, nor potential health and intergenerational benefits. Incorporating the savings from just the intangible costs of crime would increase the benefits to California by 50 percent, and boost the rate of return to 13 percent.

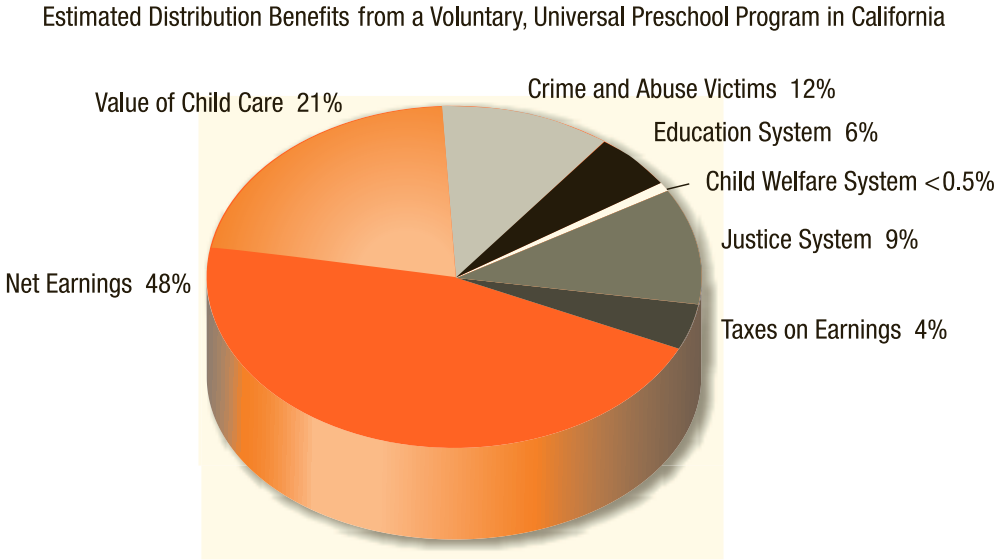
The national benefits from a statewide California program are even higher, returning $3.15 in benefits for every dollar invested. The additional benefits are mostly attributable to increased federal tax receipts.†[110]

Most of the benefits from this simulated prekindergarten program accrue to individual students. State and local California governments can only expect to collect about 20 percent of the monetary benefits (see Figure 6). However, when the increase in federal tax revenues and other national benefits is included, government sectors are expected to accrue one-third of the total benefits, with government benefits exceeding the cost of the program.[111]

FISCAL BENEFITS TO STATES AND THE NATION

The economic benefits of preschool programs can have a real fiscal impact for the United States.

Figure 6: Taxpayers and Students Both Gain Economic Benefits from Preschool Programs



Source: Lynn A. Karoly and James H. Bigelow, *The Economics of Investing in Universal Preschool Education in California* (Santa Monica, CA: RAND, 2005).

* The estimated benefits for the expanded Perry Preschool program assume that poor children would receive the full benefit, middle-income children would receive one-half the benefit, and well-off students would receive no benefit.

† The net benefit increases by about $2,300 per student, raising the total to $9,329 for every student enrolled.

Considering just poor children under the optimistic assumption that they attend a very high-quality, Perry-type preschool and experience similar benefits, an initial investment of $19 billion is expected to generate $31 billion in net budgetary savings (in 2004 dollars) by 2030, and to nearly double to $61 billion in savings by 2050. Earnings increases are expected to increase gross domestic product (GDP) by nearly one-half percent, while crime savings would total more than $150 billion by 2050.[112] However, the large benefits associated with Perry Preschool suggest these are upper-bound effects. It is reasonable to expect that a large-scale program similar to the Chicago Child-Parent Centers program could reduce these benefits to one-fifth of the effects modeled from the Perry Preschool program.[113]

Unlike more comprehensive analyses, estimates of fiscal benefits that only include the savings and revenues that affect states and exclude the benefits to individuals (such as increased earnings) continue to demonstrate that preschool is a cost-effective investment.

States can also expect to recoup much of their own preschool investments because most students continue to live in the state where they attend preschool. At age 16, about 85 percent of four-year-olds are expected to continue to live in the state where they went to preschool. Furthermore, when the students reach their prime working years, 65 to 75 percent will likely continue to live in the same state even after considering better-educated workers are more mobile.[114]

Simulations of proposed prekindergarten expansions in each of four states—Massachusetts, Wisconsin, Ohio, and Louisiana—show that every new dollar invested would return $1.18 to $2.25. The present-value fiscal net benefits range from $105 million in Louisiana to $299 million in Ohio (see Table 5).

School Savings

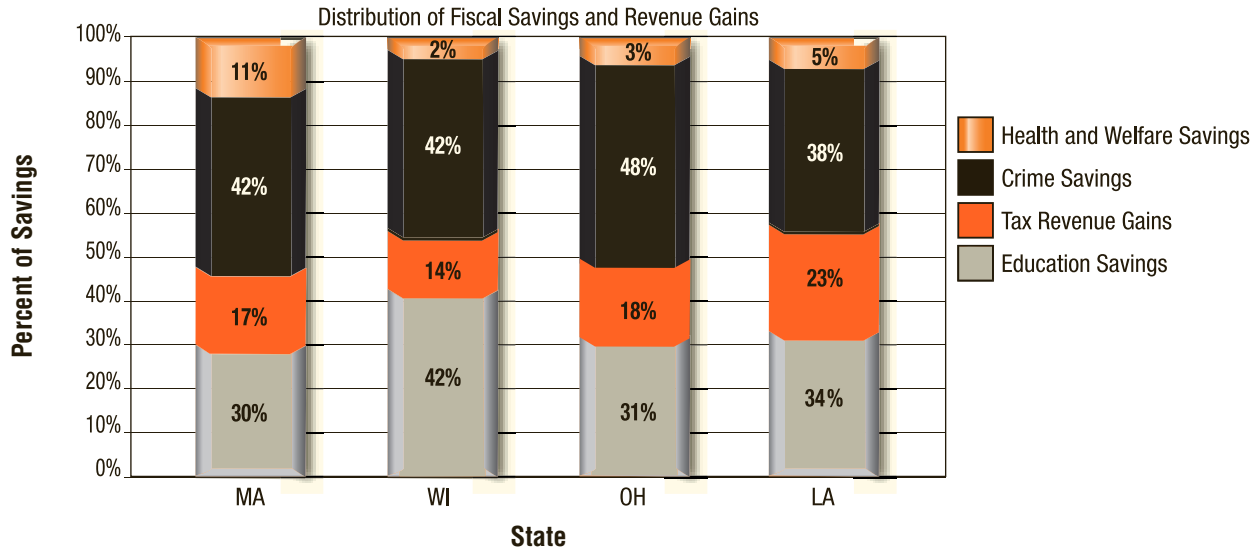
Near-term savings in education account for roughly 30 to 40 percent of the expected state fiscal benefits from expanding preschool programs (see Figure 7). Investments in early education largely pay

Table 5: Expected Fiscal Benefits from Expanded Prekindergarten Programs

	Massachusetts	Wisconsin	Ohio	Louisiana
Annual cost per child	**$6,500**	**$6,445**	**$5,900**	**$7,056**
Target population	3 and 4 year-olds	4 year-olds	An additional 40% of 3 year-olds for two years	4 year-olds
Total additional Pre-k Investment	$578 million	$207 million	$482 million	$120 million
	Share of New Prekindergarten Investments Recouped			
School system cost savings	36%	68%	50%	77%
Tax revenues	20%	23%	29%	51%
Criminal justice savings	50%	69%	78%	85%
Health expenditure savings	8%	3%	0%	12%
Welfare expenditure savings	5%	n/a	5%	
Total benefit	$683 million	$339 million	$782 million	$270 million
Net benefit	**$105 million**	**$132 million**	**$299 million**	**$150 million**
Benefit/Cost Ratio	**1.18**	**1.64**	**1.62**	**2.25**

Sources: Clive R. Belfield, "The Fiscal Impacts of Universal Pre-K: Case Study Analysis for Three States," Working Paper No. 6 (Washington, DC: Invest in Kids Working Group, March 2005), Table 4, page 19; Clive R. Belfield, *An Economic Analysis of Pre-K in Louisiana* (Washington, DC: Pre-K Now, June 2005), Chart 2, p. 9; Clive R. Belfield and Dennis K. Winters, *The Economic Returns to the Education System from Investments in Four-year-old Kindergarten for Wisconsin* (Washington, DC: Pre-K Now, 2005), Table 4.1, p. 14.

Figure 7: Preschool Programs Can Have Widespread Fiscal Impacts for States



Source: Clive R. Belfield, "The Fiscal Impacts of Universal Pre-K: Case Study Analysis for Three States," Working Paper No.6 (Washington, DC: Invest in Kids Working Group, March 2005); Clive R. Belfield, *An Economic Analysis of Pre-K in Louisiana* (Washington, DC: Pre-K Now, June 2005).

for themselves with the savings states recoup during the K-12 years. Depending on program expansion scenarios, the cost savings in subsequent educational years is expected to offset from one-third to three-fourth of the preschool expansion costs—translating into K-12 savings ranging from 36 to 77 cents for every dollar spent on preschool.[115]

As much as one-quarter to one-half of the school system savings are expected to come from reductions in special education (see Figure 8). Recent increases in the percentage of students enrolled in special education, and the cost to educate them, suggest these savings will grow in the future. Reductions in grade repetition will likely comprise about 1 to 3 percent of the cost savings in education. Smaller savings arise because the cost of one additional year of school is relatively modest compared to multi-year enrollments in special education.*

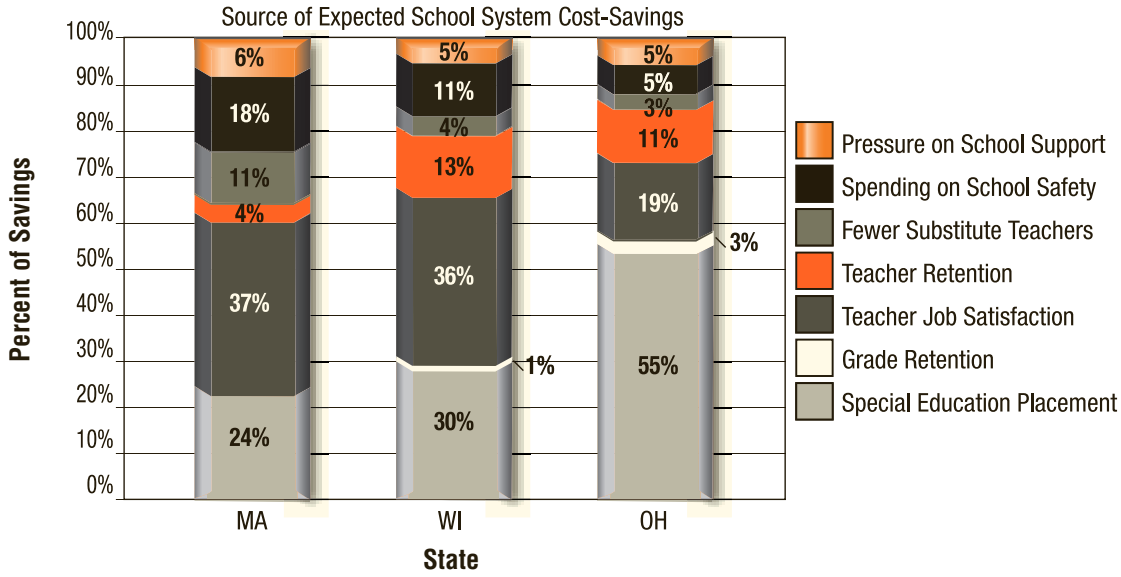
Better-prepared students also set in motion a more productive learning experience that can persist throughout the elementary and secondary school years and impact costs in multiple ways. Students' improved academic achievement and behavior can reduce costs if, for example, fewer programs are needed to assist low-performing students and fewer security measures are required. The strong peer effects found in K-12 education suggest that improving the achievement of preschool students will also boost the achievement of their peers, reducing school costs and contributing to improved productivity within schools.[116]

More satisfied teachers could account for one-third to one-half of the savings in education. Because teacher salaries comprise a large share of educational expenditures, teacher job satisfaction—which is strongly affected by student behavior—can have a sizable effect on school budgets.†[117] A more satisfied staff reduces costs associated with turnover, absenteeism and substitute teachers, and so called "hazard pay" often required to induce teachers to teach in difficult school environments.[118]

* Approximately 13 percent of students will repeat a grade by the time they reach their senior year of high school, with most students retained before the third grade. [National Center for Educational Statistics, *Dropout Rates in the United States: 1995,* NCES 97-473 (Washington, DC: U.S. Department of Education, July 1997)]

† A modest improvement in student behavior that raises job satisfaction by 10 percentage points is equivalent to a 3 percent increase in salaries. [Clive R. Belfield, "The Fiscal Impacts of Universal Pre-K: Case Study Analysis for Three States," Working Paper No. 6 (Washington, DC: Invest in Kids Working Group, March 2005)]

Figure 8: Preschool Programs Can Generate Subsequent Cost-Savings in K-12 Schools



Source: Clive R. Belfield, "The Fiscal Impacts of Universal Pre-K: Case Study Analysis for Three States," Working Paper No.6 (Washington, DC: Invest in Kids Working Group, March 2005).

Crime Savings

Between 40 and 50 percent of the fiscal benefits that states receive by implementing widely accessible preschool programs are likely to come from later savings in the criminal justice system. The criminal justice savings alone are expected to pay for one-half to more than four-fifths of the cost to expand preschool to all students.[119] The crime effects are particularly important because the United States now spends about $167 billion a year on crime, or $586 for every person in the United States.[120]

Crime exacts a large toll on society because of both the direct costs of policing, prosecuting, and incarcerating criminals, and the financial and emotional burden on crime victims. Given the high cost of crime, both in prevention and victimization costs, even a small reduction in criminal activity can have a large effect on state and federal crime expenditures.

Health and Welfare Savings

Improving the health and home lives of students could help states recoup as much as 3 to 12 percent of the cost of preschool, accounting for as much as 10 percent of the fiscal benefits arising from these programs.[121]

Improvements in overall health that arise from reductions in smoking, drug use, and teenage pregnancy, as well as more health screenings and immunizations, and better nutrition, can generate significant health cost savings. Improved health may initially increase lifetime medical costs because more educated populations live longer and spend more on medical interventions, but the health savings from the increased use of preventive care are substantial. The lifetime health savings of students who improve their educational attainment in preschool programs like Perry Preschool and Chicago Child-Parent Centers are estimated at roughly $170,000 per student.[122]

Reducing the need for child welfare programs (providing services for abused and neglected children, child protection, family reunification, foster care, and adoption), which cost governments about $17 billion per year, can also yield significant fiscal savings.[123]

Increased Tax Revenues

In addition to producing cost savings, preschool programs can also have immediate and long-term impacts on the revenue side of the equation by boosting tax revenues. The future tax revenue gains from students and the immediate revenues from parents who may choose to enter the workforce could pay for roughly 20 to 50 percent of the cost of preschool.[124]

The increased future tax revenues from preschool students could account for as much as one-fifth of the benefits to state budgets. If preschool reduces the high school dropout rate in the United States by 24 percent (a representative effect across programs), improving the educational attainment of one cohort of preschool students could generate $4 billion to $10 billion in present-value tax revenues.

Preschool may allow more parents to participate in the labor force, particularly if it is structured as a full-day program or a part-day program integrated with child care. However, the parental benefits may be more limited if parents already work and their children are currently enrolled in child care.* Nevertheless, parents whose children are enrolled in a dependable and high-quality preschool program may be more productive at work and suffer lower levels of absenteeism.[125] Because the benefits to parents would extend only over the year the children are enrolled, the tax benefits from additional parent earnings are limited and are expected to account for only about 2 percent of the total fiscal benefit to states.[126]

ECONOMIC GROWTH AND DEVELOPMENT

Preschool can provide more than significant fiscal savings. Preschool rivals traditional economic development in creating new jobs and increasing state earnings, and also boosts long-term economic growth—the primary barometer of U.S. economic health.

Economic Development

Because preschool programs consistently show that they are cost-effective programs and generate far more societal benefits than costs, they offer a promising alternative to traditional economic development programs.†[127] The economic benefits of preschool programs compare favorably even when the benefits are limited to goals typically set for economic development programs—job creation and additions to state earnings—and exclude social benefits such as reductions in crime.

Traditional economic development programs often use subsidies to encourage business relocation, development of industrial and technology parks, and professional sports investments. However, many state and local economies would have created new jobs without these costly inducements, and nationally, there is little economic benefit from these subsidies if the jobs are just relocated from one state to another.[128]

Even when some benefits from traditional economic development programs are presumed,‡ common metrics show that state preschool programs are about as effective as traditional state economic development tools. Every dollar spent on preschool or traditional economic development programs is estimated to generate about $3 in earnings to states (see Table 6). Although in the near-term it is easier to create new jobs through economic development subsidies, preschool's long-term effect on job creation is more than twice as large as business subsidies (see Figure 9).[129]

From a national perspective, preschool programs create more new jobs and generate earnings returns that are five times as great as traditional economic development programs.§ If all states implemented universally available preschool, these programs are projected to boost job growth and earnings by nearly 2 percent in 2080, generating a total of 3.2 million additional jobs. Nearly $300 billion dollars in additional earnings will be generated in 2080, which will add roughly $235 billion in new tax revenues—about four times the annual cost of the preschool programs.[130]

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* Publicly funded preschool would essentially provide "free" child care for those hours the children are enrolled. Thus, the savings would effectively boost working parents' income.

† States spend roughly $30 billion to $50 billion each year on economic development programs, an amount similar in magnitude to the cost of providing high-quality preschool for all four-year-olds. [Timothy J. Bartik, "Taking Preschool Education Seriously as an Economic Development Program: Effects on Jobs and Earnings of States Residents Compared to Traditional Economic Development Programs," Working Paper (Washington, DC: Committee for Economic Development, May 2006)]

‡ Well-designed economic development programs may provide useful benefits if the net cost of firm expansion is lower, or companies open up more new facilities or relocate jobs to where the social benefit is highest (i.e., where unemployment is high). [Timothy J. Bartik, "Taking Preschool Education Seriously as an Economic Development Program: Effects on Jobs and Earnings of States Residents Compared to Traditional Economic Development Programs," Working Paper (Washington, DC: Committee for Economic Development, May 2006)]

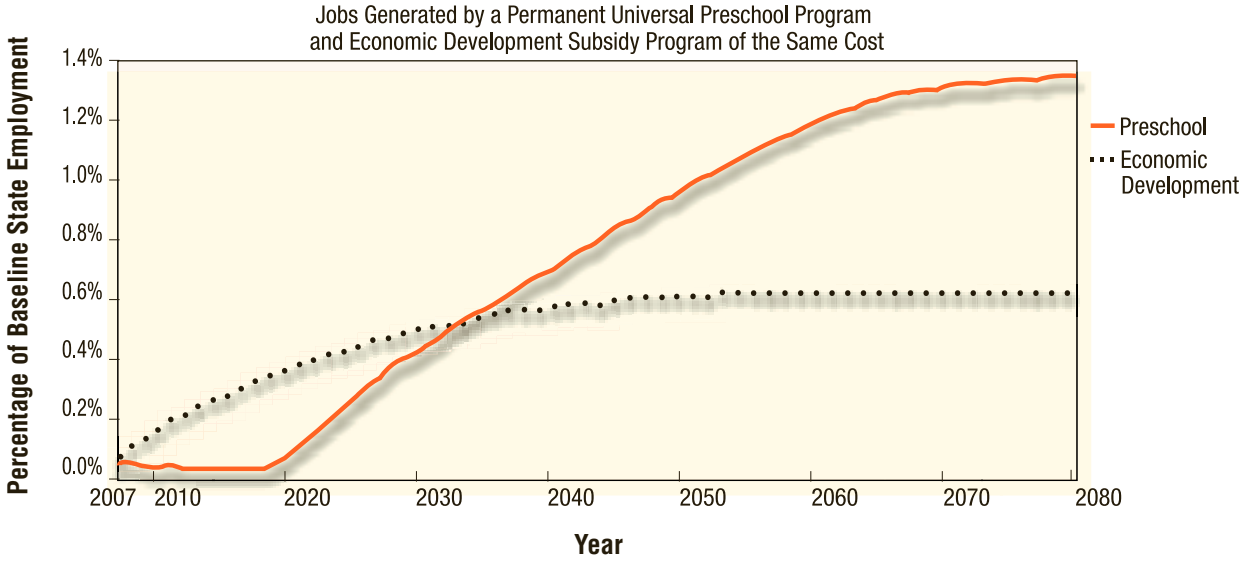
§ The limited national impact from business subsidies implies that much of the new job creation in states is just shifted from other states. Estimates of a nation-wide benefit from preschool programs are greater than for a state because it is assumed that the children will continue to live in the United States, even if they reside in a different state. State-level estimates consider that some preschool students will move out of state, and therefore the state will not recoup the benefit from that investment.

Table 6: State and National Earnings Effects of Preschool and Economic Development Programs

	Present-value Earnings Generated for Every Dollar Invested	
	State Perspective	*National Perspective*
Universal Preschool Program (voluntary)	$2.78	$3.79
Traditional Economic Development Subsidies	$3.14	$0.65

Source: Timothy J. Bartik, "The Economic Development Benefits of Universal Preschool Education Compared to Traditional Economic Development Programs," Working Paper (Washington, DC: Committee for Economic Development, May 2006).

Figure 9: Preschool Programs Generated More Jobs Than Traditional Economic Development Programs Over the Long-term



Source: Timothy J. Bartik, "The Economic Development Benefits of Universal Preschool Education Compared to Traditional Economic Development Programs," Working Paper (Washington, DC: Committee for Economic Development, May 2006).

Most of the economic development impact from preschool programs comes from improvement in the education and skills of preschool students, making them more productive workers. Only a small percentage of the benefits come from creating jobs for preschool workers and increasing the employment of students' parents.

Additional economic impact studies have considered the benefits of the broader early education and care sector, which is a sizable contributor to the economy.[131] However, these industry studies are dominated by child-care providers, and many exclude preschools altogether. Nonetheless, these analyses also find significant increases in state output, income, and jobs from direct spending on early education and care, and from indirect effects of that spending, because these businesses and their employees purchase goods and services from other businesses.

Economic Growth

Education has long been believed to be an important source of economic growth. More-educated

workers can learn new skills and technologies more quickly, display greater creativity, and take more responsibility up and down the work line, all of which make workers more productive. Furthermore, a highly educated workforce allows companies, and the whole economy, to become more adaptable—re-engineering work processes, selecting sophisticated technologies, and implementing changes to meet competitive challenges or changes in demand.

Preschool's effect on educational attainment suggests that it will create a more educated and skilled workforce, thus increasing economic growth. Simulations of a nationwide part-day, school-year preschool program for all three- and four-year-olds suggest that such a program would boost long-run economic growth, increasing total output by 3.5 percent in 2080.[132] This increase in GDP translates into an additional $2 trillion in today's dollars in 2080, or about $7,700 per capita. The long-term impact of preschool as an economic development program also finds a comparable impact, increasing GDP by 2 percent in 2080.[133]

It is estimated that such a preschool program will cost $59 billion in 2080. If federal revenues are about 20 percent of GDP, the net fiscal surplus generated by a widely available preschool program would be $341 billion. Even the most conservative estimates suggest that the program pays for itself in 2080 with the benefits more than twice as large as the cost in that year.[134]

Chapter 5

Improving Preschool Quality and Access

Delivering on the economic promise of preschool requires quality preschool programs. The largest benefits will be captured from providing these high-quality early educational experiences to all children.

"Any country wishing to compete in the modern world can't afford to ignore the potential of any of its people. So low or poor levels of literacy are not just a social problem – they are an economic problem. The toddlers and babies of today will begin their adult lives in a very different world from our own."

The Right Honorable **Beverley Hughes**, Minister of State for Children, Young People and Families, United Kingdom[135]

ELEMENTS OF HIGH-QUALITY EARLY EDUCATION

Quality is paramount if preschool is to generate meaningful economic benefits. Children who attend high-quality preschools routinely achieve better success in kindergarten and in later academic and social situations than children who attend lower-quality programs.*[136] Unfortunately, the majority of preschool programs in the United States are not high quality.[137] Many at-risk and disadvantaged children attend the lowest quality programs, as do many children from middle-class families, but the quality of preschool tends to affect disadvantaged children more strongly than their advantaged peers.[138] Elements of a high-quality preschool program include:

Well-trained and well-paid teachers. As in K-12 education, students with well-qualified teachers tend to perform better academically. Preschool teachers with bachelor's degrees and specialized training in early childhood development are more effective teachers than those with less formal education.[139] Children taught by well-educated teachers are exposed to broader vocabularies, which improves their reading, writing, and communication skills. Well-educated teachers are also better prepared to develop lesson plans and address students' educational challenges.[140] In addition to their academic knowledge, better-educated teachers also demonstrate more positive interactions and communications, advancing children's social and emotional skills.†[141]

Providing preschool teachers with compensation comparable to other elementary school teachers will likely result in lower teacher turnover, which can improve student-teacher relationships and improve student learning. The Abecedarian program paid teachers a salary comparable to public school teachers and on a twelve-month scale; as a result, there was virtually no voluntary staff turnover. Furthermore, well-qualified and respected teachers are more likely to engage in ongoing learning to improve their teaching practices.[142]

Appropriate curriculum. A well-designed preschool curriculum is age-appropriate, research-based, and considers the development of the whole child. The curriculum should include language/literacy, mathematics, science, and social studies, while also focusing on children's social and emotional skills, and health and physical development.[143] Nearly all states have or are developing early learning content standards identifying the skills that should be taught within these different domains, but standards vary significantly by state. Content standards should be aligned with preschool curricula and assessments, and similarly, preschool content standards should be aligned with academic standards in K-12 education.[144] Most importantly, however, preschool curricula should be fun

* Preschools are typically rated on two dimensions of quality: process and structure. Process quality incorporates observed interactions, activities, materials, learning opportunities, and health and safety routines. Structural quality addresses group sizes, adult-child ratios, and the education and training of the teachers and staff.

† While it is important for prekindergarten teachers to have bachelor's degrees, those who supervise the children during non-academic periods (such as before- and after-preschool child care) may receive less formal training.

and engaging with educational materials developed specifically for three- and four-year-old children.

Small class sizes and low child-teacher ratios. More intimate classes allow for better student learning and successful classrooms contain 20 or fewer students with at least one teacher for every 10 students.[145] Small classes allow teachers to spend less time on organizational items, such as lining up students and taking attendance, and more time educating children.

Adequate instructional time. Successful programs maximize contact hours with students. Students may benefit differently from programs of varying intensity, though a one-half or full school-day program for two years will likely provide lasting benefits for most students. Children in Connecticut who attended two years of preschool (particularly those children for whom English was a second language) had significantly better language and literacy, math, social/emotional, and fine motor skills than children with only one year of preschool.[146] Children in the Chicago Child-Parent Centers program also demonstrated higher academic achievement from a second year of preschool, though the first-year benefits were larger and there was little added benefit on social outcomes from a second year of participation. However, the permanent increases in IQ demonstrated by children who enrolled at birth in the Abecedarian program suggest that more intensive programs could have large, lasting effects for some students.

Enrolling children in preschool for 15 to 30 hours per week appears to be ideal. Children who attended fewer hours showed lower cognitive gains, while those children who were enrolled for more hours did not demonstrate any additional benefits.[147] However, some children may benefit more from full-day programs. Low-income and minority children enrolled in Oklahoma's full-day prekindergarten program showed large academic benefits, while those who attended half-day programs demonstrated small or no gains.[148] In New Jersey, children in a large, low-income urban school district demonstrated academic gains from part- and full-day programs, but full-day programs had a larger effect on student achievement.[149]

A related consideration is the availability of integrated before- and after-care. Unless preschool programs offer child care for the remainder of a parent's work day, many children will be unable to enroll. Integrating preschool and child care in community-based settings may make it easier for working families to participate in high-quality, public programs.[150]

Parental support and involvement. High-quality preschool programs consult regularly with parents about their children's education, and offer at least one support service such as parent conferences, home visits, parenting support or training, referral to social services, and information relating to nutrition.* Schools should also welcome parents by inviting them to participate in the classroom and providing strategies and materials to use at home to reinforce classroom experiences.

PRESCHOOL FOR ALL

Almost all students can benefit from preschool and should have an opportunity to attend. However, offering high-quality preschool opportunities to all students does not require that all programs provide uniform services; disadvantaged children may need more intensive instruction or greater support services. In addition, some children may require educational interventions that begin even earlier, during the infant and toddler years.

Academic Benefits. Preschool can improve the educational outcomes of all students, not just those at risk. While disadvantaged children may require more comprehensive early education programs, clearly the need for high-quality preschool also extends to more advantaged children. They too often cannot afford high-quality programs, begin school unprepared, and face educational roadblocks requiring remediation, special education, or dropout intervention. As proven in the Oklahoma and Georgia programs, all children can benefit academically from high-quality preschool programs.

* The Chicago Child-Parent Centers program had a teacher who took responsibility for the Centers' parental involvement and staffed a parent resource room. The program hired parents of former students to conduct home visits and help families mobilize community resources. In addition, parents whose children participated in the CPC program signed an agreement to participate in the program the equivalent of a half day each week. [Ellen Galinsky, *The Economic Benefits of High-Quality Early Childhood Programs* (Washington, DC: Committee for Economic Development, February 2006) pp. 23-24]

Universally accessible programs can further boost the academic benefits for low-income children through peer effects. As in K-12 education and the Georgia prekindergarten program, classrooms that integrate children from different socioeconomic backgrounds may narrow academic gaps even further as students mirror the behaviors of their more-advantaged classmates. Advantaged children also benefit when better-prepared students result in a more academically advanced kindergarten class. Some peer effects occur with large-scale programs because schools can only capture the efficiency gains of a better-prepared student body with a critical mass of better-prepared students.[151]

Administration. Universally available prekindergarten programs are more likely to reach all disadvantaged children. Many disadvantaged children who would be eligible for existing public preschool programs do not enroll because of changing family circumstances.* With universal programs, children would remain eligible even when their families move to a new community, increase their earnings above the poverty line, or their parent's employment status changes.[152] Parents may also be more aware of widely available programs, and more likely to enroll their children in programs if they do not have to prove income-eligibility.

Offering prekindergarten to all students would also free up resources that would otherwise be spent evaluating and monitoring student eligibility. An inclusive program would allow systems to spend a larger share of their resources on education and other support services.

Political realities. Public programs that benefit a broad constituency tend to receive more political and public support, increasing the probability of long-term sustainability.[153] The most secure and well-funded government programs are usually those that provide services to a large and influential population. Our current K-12 public education system, for instance, provides services to *all* students, not just those who cannot afford to pay for a private education. Our education system receives financial support at the federal, state, and local levels, and public support from those households both with and without children, recognizing both the local and national benefits of a good school system: strong property values and a well-educated citizenry. Other social welfare programs such as Social Security and Medicare also enjoy broad political and public support because they benefit elderly residents regardless of income, while targeted programs such as the Temporary Assistance for Needy Families (TANF) welfare program tend to receive limited funding and support. Programs targeted towards certain groups tend to have more trouble maintaining political support over the long term, as other interest groups compete for government funding.

GROWING UNIVERSAL PROGRAMS TO SCALE

States will likely face challenges as they implement, or transition to, large-scale publicly available preschool programs. It is often difficult for states to extend programs to rural populations, as well as linguistic and cultural minorities. Supporting teacher development and career path creation, while maintaining high standards, can often smooth the transition. Many programs also have difficulty finding enough well-qualified teachers for expanded programs when salaries are low and training opportunities for prekindergarten staff are limited. States can smooth the expansion by considering the new training, professional development, and teacher compensation that may be required when moving to large-scale public programs.[154]

Obstacles can also arise when trying to finance new state programs. States must first decide how to best fund their program, and then foster cooperation between bureaucracies if blending sources of funding from national, state, and local levels.[155]

* For example, the current Head Start program fails to include over 40 percent of the three- and four-year-olds who live in poverty and at any given time, the number of children in poverty served by the program may drop below 50 percent. [W. Steven Barnett, "The Universal vs. Targeted Debate: Should the United States Have Preschool for All?" *Preschool Policy Matters,* issue 6, April 2004; W. Steve Barnett, Jason T. Hustedt, Kenneth B. Robin, and Karen L. Schulman, *The State of Preschool: 2004 State Preschool Yearbook* (New Brunswick, NJ: NIEER, 2004)]

Chapter 6

Financing Preschool for All

Pubic spending on preschool totaled about $9.9 billion in 2004-2005. States spent about $2.8 billion on prekindergarten, a slight increase over previous years, and state and federal Head Start accounted for the majority of the additional spending.*[157]

"Giving children a chance at a good quality education is not only the key to success in America, but it's something all of us should be willing to roll up our sleeves and fight for."

Illinois Governor **Rod R. Blagojevich**[156]

Spending on prekindergarten programs varies widely by state, as do program designs and funding strategies (see Box 2). Among the states that had prekindergarten programs during 2004-2005, only nine made substantial per-child investments of more than $4,500 (see Table A1).[158] Funding ranges from less than $1,000 per child in Maryland to over $9,300 in New Jersey, with state investments averaging about $3,500 per child. However, states may also receive money from other federal and local sources to fund prekindergarten programs for economically or educationally disadvantaged students. Nevertheless, state spending on preschool is significantly lower than the federal Head Start program, which spends more than $7,000 per child.† States spend even more each year, about $7,400 per child, on instruction and related costs in K-12 education.‡

COSTS OF UNIVERSAL AND QUALITY PREKINDERGARTEN

The cost of implementing a high-quality prekindergarten program available to all four-year-olds will differ by state. The largest variable in determining the cost of preschool is teacher salaries, which vary across and within states, as they reflect different local labor market conditions. In addition, the structure of the program, including the duration and hours of service, the services provided, participation or enrollment rates, and possible transportation costs or parental contributions all affect the cost.

A high-quality, three-hour, school-year prekindergarten program is estimated to cost around $5,100 per student.[165] The *new* money needed to offer preschool to all children whose parents would like them to attend is estimated between $16 billion and $27 billion, which includes funding both for new students and upgrading the quality of existing programs for many current students.§ The total cost to serve all 8.2 million three- and four-year-olds in the United States is between $42 billion and $72 billion (see Table 7).

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* Three-fifths of spending on preschool programs is attributable to just five states: California, Georgia, New Jersey, New York, and Texas. While state spending on prekindergarten increased by $30 million (in inflation-adjusted dollars) over the 2002-2003 school year, the new funding was not enough to keep pace with increasing enrollments and inflation, and state spending per child has decreased by 7.3 percent since 2001-2002. Moreover, even though nationwide investments in preschool are increasing, total state spending on preschool declined in 21 of 38 states. [W. Steve Barnett, Jason T. Hustedt, Kenneth B. Robin, and Karen L. Schulman, *The State of Preschool: 2005 State Preschool Yearbook* (New Brunswick, NJ: NIEER, 2005), p. 20, table 5]

† Head Start funding includes more services than preschool. In addition to cognitive and language development, Head Start includes medical, dental, mental health, nutritional, and social services.

‡ Total per-child costs in K-12 education are slightly higher, $8,585, when including capital outlays and interest on school debt. [National Center for Educational Statistics, *Digest of Education Statistics 2005* (Washington, DC: U.S. Department of Education, 2005)]

§ About 24 percent of children are already enrolled in publicly funded prekindergarten programs, whether Head Start or an existing state program, another 10 percent will likely remain in private programs, and it is estimated another 20 percent of four-year-olds and 40 percent of three-year-olds will likely not enroll in preschool at all.

Box 2: State Prekindergarten Program Highlights

Several states have already implemented broadly accessible preschool programs. Georgia offers prekindergarten to virtually all four-year-olds and funded the program with $276 million from state lottery revenues in 2004-2005. Georgia prekindergarten programs are offered in all districts through a combination of public and private providers, including public schools, private centers, and faith-based organizations.

In Oklahoma, 95 percent of school districts offer preschool, enrolling more than 60 percent of four-year-olds—more than any other state. Funding totaled nearly $80 million in 2004-2005 with the state reimbursing school districts for each child enrolled. The funding formula varies depending on the length of the program (half-day or full-day). Oklahoma's program is very high quality; all teachers are required to have a bachelor's degree with certification in early childhood education.[159]

Arkansas also has a very high-quality prekindergarten program.* The Arkansas Better Chance (ABC) program serves low-income and at-risk and under-achieving children from birth to age five and the $71 million in annual funding is supported, in part, by a 3 percent excise tax on beer in addition to other state and local funding.[160] While the Arkansas program is only available to low-income children, nearly 56 percent of children under age five are living in poor families, and thus are eligible to participate.

Tennessee has recently increased funding for its prekindergarten program. Established in 2005, the Tennessee Voluntary Pre-Kindergarten Program will receive $25 million in funding from excess lottery revenues that will more than double the number of state-funded prekindergarten classrooms.[161] The program, which requires a state/local match of funds, serves low-income three- and four-year-olds.

Florida established the Voluntary Pre-Kindergarten Education Program in 2005, providing a free, universal preschool program for all Florida four-year-olds.[162] Parents will receive a voucher for use at the provider of their choice, but the expected amount of the voucher ($2,500 per child) is well below the cost of a high-quality program.[163] Furthermore, teachers are only required to have a child development associate credential, although the goal is for every preschool teacher to have an associate's degree in five years and a bachelor's degree in eight years.[164]

Current Preschool Financing Mechanisms

Current funding for state prekindergarten programs generally comes from federal, state, and local sources. Most states fund preschool programs from general revenues, either from sales, income, or other taxes and fees. Maine and Wisconsin, for example, use general education funds to include preschool for disadvantaged four-year-olds.[166]

Local property taxes can also be used to finance early education. In November 2002, the community of Portland, Oregon, voted to adopt a measure creating a Children's Investment Fund, which is expected to raise $10 million per year to finance prekindergarten, among other programs.[167]

Local school districts can create new preschool programs, and expand or improve the quality of existing ones, through Title I of the No Child Left Behind Act. Local education agencies disperse the funds to schools based on the percentage of disadvantaged children in the school, according to a funding formula determined by the state. The Chicago Child-Parent Centers, for example, use Title I to fund the half-day preschool component of their program, as well as half- and full-day kindergarten.[168] In Fiscal

* Arkansas has the only program that meets all 10 quality standards of the National Institute for Early Education Research.

Table 7: Estimated Costs for a Universal, High-quality Prekindergarten Program

Type of Program	Cost per Child	Total Cost for 100% Public Participation	Total Cost for Estimated Public Participation *	Total New Funding Required for New and Upgraded State Prekindergarten Slots **
		3- and 4-year-olds (in billions of dollars)		
3-Hour, School Year	$5,100	$41.6	$24.9	**$15.6**
Full-Day, School Year	$8,800	$71.7	$43.0	**$26.6**
Full-Day, Year Round with Integrated Child Care	$12,970	$105.7	$63.4	**$38.7**
Equal Mix of Programs	$8,957	$73.0	$43.8	**$27.0**
		4-year-olds only (in billions of dollars)		
3-Hour, School Year	$5,100	$20.8	$14.6	**$8.0**
Full-Day, School Year	$8,800	$35.9	$25.1	**$13.6**
Full-Day, Year Round with Integrated Child Care	$12,970	$52.9	$37.0	**$19.5**
Equal Mix of Programs	$8,957	$36.5	$25.6	**$13.7**

* Total cost for public participation assumes that 70 percent of four-year-olds and 50 percent of three-year-olds will participate in a public preschool program (state prekindergarten, Head Start, or special education preschool programs).

**Total new funding assumes that new slots will be created for 35 percent of 4-year-olds and 36 percent of 3-year-olds not enrolled in public preschool programs, and one-half of existing state prekindergarten slots would need to be upgraded. Upgrading Head Start (for 65 percent of current slots) would likely require an additional $1.1 to $1.6 billion annually above current spending.

Note: Per child cost estimates were drawn from Steve Barnett "Cost of Providing Quality Preschool Education to America's 3- and 4-Year-olds" (2005), available at <nieer.org/resources/facts/index.php?FastFactID=5> Accessed May 11, 2006.

Year 2002, two to three percent of Title I funds, or $200 million, were used on preschool programs that served over 300,000 children.[169]

The federal government has several programs that can help states finance preschool. The federal Head Start program provided $6.8 billion in 2005 to fund preschool programs for poor three- and four-year-old children.[170] In addition, the federal government provides grants for preschool programs for children requiring special education through Part B of the Individuals with Disabilities Education Act. The Even Start program, which focuses on early education, parenting, and adult literacy for low-income families, also provides grants for projects administered by the states.

Other sources of federal funding are the Child Care and Development Block Grant and the Child Care Entitlement to States which together constitute the Child Care and Development Fund (CCDF).* CCDF subsidizes the cost of child care or early education for low-income families by providing either a child-care slot or a voucher that can be used to pay any provider that meets state requirements.[171] The state of Georgia, for example, uses CCDF funds for early childhood education.[172]

An increasingly popular mechanism for financing preschool programs is through "sin" taxes. States have used proceeds from lotteries, as well as taxes on tobacco, alcohol, and gaming to generate large revenues. For instance, California's 50-cent tax on cigarettes has generated $4 billion, all of which was earmarked for early childhood health and education programs.[173] However, sin taxes may not be a stable

* The Child and Dependent Care Tax Credit also provides a tax credit based on the amount of child-care expenses incurred by a working parent or parents. The tax credit mainly benefits middle- and upper-income families, as their tax liability is greater; many lower-income families have too little tax liability to make full (or even any) use of the credit.

source of funding, as revenues may decline over time for some items. If more people quit smoking, for example, less revenue will be generated from a tobacco tax.

ALTERNATE FUNDING STRATEGIES FOR UNIVERSAL PRESCHOOL

Universal prekindergarten programs can be financed a number of different ways. Most proposals, while providing access for all children, focus on financing mechanisms that would allow economically disadvantaged children to participate without requiring large public expenditures. As a result, developing a uniform set of criteria for determining a family's ability to pay for preschool is particularly important.

Government Cost-Sharing Model. CED's previous policy statement supporting preschool for all children recommended a new federal-to-state preschool grant program.[174] The federal government would provide preschool funding to each state for children in families earning below 85 percent of state median family income, allowing one-half of all children in the United States to qualify for federal funding. Providing preschool to all children would require roughly 50-50 cost-sharing between federal and state governments. A federal grant program should involve new money, and not draw money away from K-12 education, Head Start, or child care.

Federal, state, and local governments could also simply expand existing programs and continue to share their part of the costs. For example, federal and state governments could gradually expand and improve Head Start to provide more full-day, full-year slots for children from low-income families, as well as expand programs to serve more children from birth through age three.[175] Many states provide supplemental funds for Head Start already; they could extend these programs and at the same time expand existing state programs to enroll any child whose parents want them to attend. Elementary schools could also expand to provide preschool for four-year-olds, financed through public school revenue streams.

Parent Cost-Sharing Model. Sharing the cost of preschool between parents and the government is another way to provide high-quality preschool to all children. For example, parental fees could be charged on a sliding-income scale, with the lowest-income families charged no enrollment fees and the fees escalating by income-level. Alternately, parents and federal or state governments could contribute to the cost of preschool in tax-free accounts.[176] Public dollars could be deposited in the accounts, structured either as a contribution that decreases as family income increases, or as a match to family contributions. Use of the public funds could be restricted to high-quality programs as an incentive to improve the quality of early childhood education.

Costs could also be shared by providing a government subsidy directly to prekindergarten providers and financing the remaining costs using publicly funded income-related vouchers (which may require parental co-payments) for parents to use at a prekindergarten program of their choice.[177]

Endowment/Scholarship Model. Creating a permanent endowment fund, as recently proposed in Minnesota, could finance scholarships for children's tuition at a qualified preschool program, as well as the cost of high-quality parent mentoring programs and home visitation.[178] An endowment could be created by state or local governments, in partnership with the private sector and the federal government. State or local governments could encourage contributions by matching donations or giving tax credits. In April 2006, the Nebraska legislature passed a bill creating the Nebraska Early Childhood Endowment Fund to serve at-risk children from birth to age three. The endowment is financed with $40 million in public funds and another $20 million will be raised from private donations.

An endowment program could provide scholarships for children to attend early education and care programs, and award larger grants to children who have multiple disadvantages. The scholarships could also include financial incentives to providers for improving a child's learning outcomes and be layered on top of existing funding to providers to raise program quality. Payments would go directly from the endowment to the provider.*

* The endowment, scholarships, parent mentors, and the program evaluation would be managed by an executive board, reporting to an outside board of directors. The board would set standards for early child-care providers, and the providers would compete for the most at-risk children, with parents selecting the best program for their child. [Rob Grunewald and Art Rolnick, "A Proposal for Achieving High Returns on Early Childhood Development," Working Paper (Minneapolis, MN: Federal Reserve Bank of Minneapolis, May 2005), p. 19]

Higher Education Model. Financing prekindergarten through a model similar to higher education would require three funding streams: endowments, loans, and financial aid. As proposed in the Minnesota model, endowment funds could provide revenue by encouraging charitable giving among diverse donors and funders, and result in a stable financial system that would fund high-quality programs and provide financial assistance to low-income families.[179]

Long-term, low-interest, subsidized loans could also be used to help children from middle-income families finance preschool. Federal or state governments could adapt existing higher education loan programs (e.g. the Parent Loan for Undergraduate Students program) to early education, but the demand for the loans must be high enough to attract private lenders.[180] A community-based financial aid center for early education could be created, much like a college financial aid office, to help parents navigate their financial options.[181]

Chapter 7

Complementary Investments

Though preschool plays an important role in child development between the infant/toddler years and the schooling years, complementary investments both earlier and later in children's lives will further improve students' abilities. Early interventions may provide additional cost-effective ways to improve economic growth.[184]

"…our voluntary Pre-K program is not a silver bullet. We must continue to fully fund K-12 education and focus on teacher pay and meaningful professional development, direct parent involvement, intensive intervention for struggling students, and specific job creation strategies. But, I believe early childhood education must serve as the foundation."

Tennessee Governor **Phil Bredesen**[182]

"It is critical that our children are ready to learn when they enter kindergarten. We know that long-term academic success depends largely on the experiences children have in the first few years of their lives. The goal we must strive for is to make certain that every child in Connecticut has the opportunity to attend a preschool program."

Connecticut Governor **M. Jodi Rell**[183]

BRAIN RESEARCH

Brain research shows that investments in children from birth to age five have an impact on future years. During this time, children rapidly develop foundational capabilities on which subsequent development builds and that lay the groundwork for skills that follow.[185] An infant's brain contains approximately 100 billion nerve cells and that amount will change little over the baby's life; however, early experiences influence the connecting of cells and their subsequent usefulness later in life. Children must engage in developmentally appropriate experiences for the central nervous system to become properly wired and to function optimally.[186]

Early environments and attachments strongly influence child development, and parents are children's primary teachers. The most important relationships most often occur in the home. Early relationships shape children's foundations of self-awareness, social competence, conscience, emotional growth and regulation, learning and cognitive growth, and a variety of other developmental accomplishments.[187] High-quality preschool experiences should complement parents' primary role in their child's development.

OTHER EARLY CHILDHOOD INVESTMENTS

Because early environments are critical to early brain development, investing in children even before the preschool years complements high-quality prekindergarten. Strong prenatal and early health care, home visits, and quality child care can strengthen children's early development; however, these programs tend to become more effective when implemented in conjunction with prekindergarten and other programs to promote early child and health development.

Prenatal care investments are important because the developing brain shows high vulnerability to intrinsic hazards and external insults resulting from drug or alcohol exposure, viral infections, malnutrition, and other environmental harms in the prenatal months. Because of this vulnerability, efforts to protect brain development during pregnancy and the earliest months of life are crucial. Such efforts include prenatal and postnatal medical care, expanded public health efforts to improve nutritional quality, and reductions in drug and viral exposure.[188]

Child health is also important to early childhood development. Proper nutrition, preventative well-child

visits with a pediatrician, and immunizations can all promote better health among children. Improper nutrition can have negative effects on child development and severe malnutrition can lead to illness or death. In addition to a healthy diet, regular well-child visits can often identify childhood illnesses and conditions early, when they are more easily cured or corrected. Regular doctor visits also increase the likelihood that children will receive vaccinations that protect against many serious diseases.

Home visiting programs that seek to improve parents' knowledge and skills related to child health or education can have a positive effect on some children. Home visiting programs have generally shown modest effects on child development, but quality programs or those coordinated with a preschool are more likely to positively affect child outcomes.[189] Efficacy varies widely depending on program goals, program models, implementation site, and also among families within a single program site.[190] The intensity of the services provided, the skills of the home visitors, and the content of the home visiting curriculum all dictate program effectiveness. Home visiting services appear to be most beneficial in families where initial need is greatest or where parents believe that their children need the services; these children often have low birth weight, special needs, or behavioral problems.

High-quality child care for toddlers and young children also plays an important role in child development and families' ability to obtain economic security. High-quality child care settings often look like high-quality preschool, with age-appropriate learning and exploration, small groups, high staff to child ratios, and health and safety measures in place. Quality child care complements preschool, helping children learn to socialize and begin building early cognitive skills. Child care also enables parents to return to work, stay employed, or attend school, which contributes to the economic security and livelihood of young families.[191]

K-12 AND HIGHER EDUCATION

While preschool can improve educational outcomes of students, it needs to be followed up with high-quality schooling during the elementary and secondary years. Providing children with a good educational foundation, but failing to provide the resources to keep students learning and engaged in education, will lessen the benefits of preschool.

To build on the benefits of a high-quality prekindergarten program, elementary and secondary schools must create environments that foster learning. Content standards should be aligned from across all grades, beginning with prekindergarten, and reflect a well-rounded curriculum. Assessments should also align with the content taught. Productive learning environments also require adequate textbooks and clean classrooms, and schools where children are not bullied, harassed, or exposed to violence.

To prepare the necessary workers to participate in the global knowledge economy, more students will need to move though the higher education system. Improving college affordability will remove a significant barrier to college enrollment and graduation. But far too many students enter college unprepared for the rigors of college-level work and enroll in remedial classes, lessening their chances of ever earning a degree. Colleges and universities need to provide additional academic and support services that help students graduate, and work with high schools to articulate the skills required to enroll in and graduate from college.

Chapter 8

CED Recommendations and Conclusion

High-quality early education programs provide positive early learning environments for children, laying the academic and social foundations that allow them to prosper in school and in life. But investing in these programs is important for reasons that extend well beyond the benefits they provide to individual students; society also gains from the economic and fiscal benefits associated with these programs.

As the United States faces real economic, demographic, and fiscal challenges in the coming years, investments both in young children and in education—the nexus being preschool—offer the most promising economic benefits.

"Early education is most certainly the next wave of educational reform, which puts CED on the cutting edge of that reform. It's important to let business leaders know that the cause is an urgent one. The U.S. is simply playing catch-up with the rest of the industrialized world. Most advanced nations already invest in early education. Indeed, there is already a deep appreciation worldwide among global business leaders of the relationship between investment in early education and the quality of the workforce. All across Europe, early education and care are already part of the national infrastructure, long accepted as necessary in raising an educated, productive citizenry. Similarly, Asian countries have long valued early education of their youngsters."

Dr. Donna Shalala, President, University of Miami, CED Trustee [192]

CED RECOMMENDATIONS

Access

CED recommends that communities, states, and the nation make access to publicly funded, high-quality preschool programs an economic and educational priority.

With economic pressures from global competitors mounting and federal and state budget positions worsening, implementing high-quality preschool programs for all students is one of the most cost-effective investments states can make. Preschool programs pay for themselves several times over, generating budgetary savings and boosting states' long-term economic outlook; they also leverage existing educational investments and provide widespread social returns, allowing students to become productive and engaged citizens. The largest benefits will be gained when all children have access to early learning environments that foster the skills they will need later in work and life. Much like the free public education provided to elementary and secondary school students and the public investments that subsidize higher education for all college students, our nation's youngest learners also deserve full access to high-quality, publicly funded preschool programs should their families choose to enroll them.

The economic benefits of preschool will be greatest when all states implement high-quality, publicly funded early education programs and make preschool available to all three- and four-year-old children whose parents want them to attend. State preschool initiatives should complement the federal Head Start program for disadvantaged children by offering high-quality preschool programs to all children. Expanding access to quality preschool programs will require more than just funding additional slots for poor children, as access continues to be limited even as families move up the income ladder. Poor children, however, will likely require more intensive and comprehensive services. Societal benefits will be greater, even after accounting for the increased costs, by extending preschool programs to all students. Some of the broader benefits of preschool, such as improving system-wide efficiency

in K-12 education and improving overall labor force quality, will be more easily attainable with large-scale programs. In addition, universally available programs will reach more students on the margin of being poor.

Preschool programs should provide adequate classroom hours to ensure improvements in student learning that will translate into economic benefits. States should offer two years of full-day prekindergarten for all preschool-age children. However, families with preschool-age children often have different requirements, and states may choose to offer a mix of programs to meet parents' diverse needs. Many programs will also need to integrate preschool and child care (funded through other sources or by families, and allowing for non-degreed caregivers) so working parents can enroll their children in preschool.

States should embrace diverse providers that meet quality standards and the needs of the communities they serve. Providing universal access to preschool does not necessarily mean offering a uniform program. States may choose to develop a prekindergarten system housed primarily in public elementary schools, or utilize a network of preschool classrooms located in public schools, independent schools, child-care centers, faith-based centers, private homes, or other community-based settings. The best system is one that meets the needs of the parents and students in the communities they serve. Regardless of the system designed, however, public funding should be tied to state-determined quality standards.

Maximizing program access and efficiency will require federal and state governments to coordinate publicly funded prekindergarten, Head Start, and child-care programs. With multiple early education and child-care programs already underway in the states, implementing or expanding prekindergarten programs for all three- and four-year-olds will require additional coordination. Increased coordination between state prekindergarten and Head Start programs can eliminate duplicative programs, services, and funding inefficiencies. As state prekindergarten programs expand, Head Start should have the flexibility to serve more children from birth to age five. At the same time, improved coordination with child-care programs strengthens working families' access to prekindergarten and can strengthen the quality of child care when associated with high-quality preschool.

Business should advocate preschool programs and other complementary childhood programs and services, emphasizing the strong returns on investment and the leveraging of current expenditures. Preschool is only one element of a broader set of early childhood interventions that can improve the well-being of children, families, and society. Both government and business should support other early childhood policies related to nutrition and health, family-friendly employment practices, high-quality child care, and parental support and information programs, all of which contribute to the well-being of children. Current efforts to reform elementary and secondary education should also continue, complementing improvements in children's early learning.

Quality

CED recommends that publicly funded preschool programs meet the quality standards necessary to deliver their potential economic benefits.

If the United States is to reap the economic benefits exemplified in early education programs like Perry Preschool, Abecedarian, and the Chicago Child-Parent Centers, publicly funded preschool programs will need to mimic the high-quality environments that typify these programs. Improving access to preschool without ensuring that children are placed in environments that help them become active, inquisitive, and engaged learners will offer little return on preschool investments either to the children or to society.

To provide the greatest economic benefits possible, state prekindergarten programs and the federal Head Start program should assess their existing program standards and realign them with the factors known to contribute to improved early childhood learning and development. As a precursor to expanding access to preschool, federal and state governments should evaluate the quality of their existing programs. Providers should conceptualize how they could administer higher quality programs and re-launch their current initiatives if they fall short on quality standards. Simply expanding access without addressing quality concerns will not produce the large economic benefits that are possible from these programs.

Preschool programs should adopt an age-appropriate, research-based curriculum that embraces whole-child development and is aligned with content standards in kindergarten and elementary education. Preschool curricula should address the cognitive, social, emotional, and physical development of children. Children learn through a variety of methods, including structured learning, teacher-directed exploration, and play; teachers should adapt their lessons to the skills, abilities, and interest of the children, while helping them become inquisitive and perceptive learners. To smooth the transition to kindergarten, preschool curricula should be research-based and aligned with the state content standards for elementary school. Early coordination will ensure children are taught the skills and abilities that prepare them for a successful kindergarten year, and provide a seamless transition to the educational expectations of elementary school.

All publicly funded preschool programs should employ high-caliber teachers with bachelor's degrees and specialized training in early education. Preschool programs that are most effective in boosting student learning and subsequent success in life employ highly qualified teachers. All state-funded prekindergarten programs, as well as the federal Head Start program, should require lead teachers to hold bachelor's degrees and have additional training in early childhood education. All teacher assistants should also have, or be actively working towards, a degree, certificate, or credential (such as the Child Development Associate (CDA) credential) in early childhood development or education, which conveys knowledge of children's intellectual, social, and physical development.

A national board should be created to review and report on state preschool standards. Most states have only recently developed state standards in early education. A national board would provide a periodic independent review of those standards using a common yardstick. For example, the board would assess whether each state's content standards reflect the cognitive, communication, social, emotional, and physical domains critical to child development; ascertain how well states' content standards are aligned with preschool assessments and curricula; and determine how well they are aligned with standards in K-12 education. This high-level board would be apolitical and comprised of experts in early education—practitioners, academics, advocates, and policymakers—and function in spirit similar to the former National Education Goals Panel or the National Assessment Governing Board (NAGB).

Financing

CED recommends that federal, state, and local governments consider the broad economic benefits of preschool when deciding how to allocate resources in the face of competing uses and demands.

As federal, state, and local governments debate how to spend their economic development dollars and allocate their budgets, they should consider the different returns from those investments or allocations. When evaluating the merits of investing in different programs, they should consider the widespread economic and social benefits that derive from early education programs. Rather than focusing only on "costs" and the short-term K-3 "school readiness" effects, policymakers should weigh preschool's long-term effect on economic growth and development, as well as the societal and fiscal returns from better educational outcomes, reduced crime, reductions in social welfare, and increased tax revenues, against the returns from other programs and priorities.

Funding provided for preschool programs should be commensurate with the cost of providing a high-quality education to fully capture the economic benefits of these programs. Extending publicly funded preschool opportunities to all three- and four-year-old children will be costly, perhaps requiring as much as $30 billion in new funding annually. But the benefits of providing preschool to all students will likely return at least $2 for every dollar invested. Failure to fund preschool at the level which allows for the implementation of high-quality programs jeopardizes the promised returns, and failure to provide funding so all students can receive a high-quality preschool education further limits the potential benefits.

Current state prekindergarten and federal Head Start budget allocations should be reviewed and if necessary, revised to better support the critical elements of high-quality programs. Federal, state, and local governments currently spend nearly $10 billion on preschool programs, roughly 30 percent of which is attributable to state spending. Before broadening access and expanding budgets, resources already

dedicated to early education programs should be realigned, with funding allocated to the elements of high-quality programs, ensuring the current budget structure reflects an effective and efficient use of funds.

Preschool funding should allow for teacher compensation that is commensurate with the compensation of public elementary school teachers. Attracting and retaining high-quality teachers and assistants will require competitive salaries. Elementary school teachers are currently paid about $46,000 on average, while preschool teachers are only paid about $25,000. Because teacher salaries are the largest component of preschool costs, it is tempting to lower salaries to lower overall program costs. However, offering a competitive compensation package will reduce costly job turnover and absenteeism, and a stable and satisfied teaching staff will result in better connections with students and improved learning.

CONCLUSION

Preschool is an educational investment that the United States cannot afford to pass by in today's globally competitive environment. Preschool provides children with an opportunity to develop the early learning skills that will benefit them as they progress through school and life. Failure to provide children with the early skills that promote better educational and life outcomes will be costly for us all.

Preschool is not just an investment in children; it is an investment in our society and our economy. Early educational investments will boost the long-term employment and earnings of states and the nation, while providing cost savings in education, criminal justice, and health/welfare, and new revenues from their improved employment and earnings prospects.

Maintaining the fiscal health of states and the nation will be increasingly important as competitive pressures from abroad continue to intensify, requiring more skilled workers and investments in people and products that allow us to remain competitive. As demographic trends slow the growth of our labor force, we will need to rely more on the quality of our labor force rather than the quantity. America's prosperity depends on a strong economy, and investing in the education of our youngest learners is our best bet.

Appendix

Table A1: Spending and Enrollment in Publicly Funded Prekindergarten Programs, by State

Rank	State	State Spending Per Child Enrolled 2004-2005*	State Prekindergarten Enrollment 2004-2005	Total Spending from Federal, State, and Local Sources 2003-2004	Source of Total Spending 2003-2004
1	New Jersey	$9,305	46,464	$397,000,000	State, $397,000,000
2	Oregon	$7,624	3,502	$26,700,000	State, $26,700,000
	FEDERAL HEAD START	$7,222	906,993	$6.842 billion**	Federal, $6.842 billion**
3	Minnesota	$6,929	2,468	$16,475,000	State, $16,475,000
4	Connecticut	$6,663	7,297	$49,734,424	State, $40,359,697; Local, $9,374,727
5	Ohio	$6,325	10,730	$86,103,282	State, $30,116,082; Federal, $55,987,200
6	Delaware	$5,816	843	$4,456,700	State, $4,456,700
7	Massachusetts	$4,848	14,150	$77,600,000	State, $44,600,000; Federal, $24,000,000; Local, $9,000,000
8	Arkansas	$4,711	9,316	$15,422,141	State, $11,015,815; Local, $4,400,000
9	Washington	$4,710	5,722	$35,195,616	State, $32,276,963; Federal, $2,034,083; Local, $501,479
10	West Virginia	$4,323	7,980	$54,500,000	State, $34,500,000; Federal, $20,000,000
11	Louisiana	$4,235	12,379	$58,066,097	State, $49,566,097; Federal, $8,500,000
12	North Carolina	$4,058	12,167	$67,648,208	State, $38,830,879; Federal, $28,817,329
13	Georgia	$3,899	70,793	$261,000,000	State, $261,000,000
14	New York	$3,548	69,454	$253,895,855	State, $247,748,871; Local, $6,146,984
15	Hawaii	$3,486	955	$3,028,218	State, $3,028,218
16	Virginia	$3,420	10,307	$31,633,200	State, $18,199,200; Local, $13,434,200
17	Alabama	$3,386	972	$5,011,050	State, $3,291,050; Federal, $100,000; Local, $1,620,000
18	Michigan	$3,366	24,862	$84,850,000	State, $84,850,000

Table A1 (continued)
Spending and Enrollment in Publicly Funded Prekindergarten Programs, by State

Rank	State	State Spending Per Child Enrolled 2004-2005*	State Prekindergarten Enrollment 2004-2005	Total Spending from Federal, State, and Local Sources 2003-2004	Source of Total Spending 2003-2004
19	Tennessee	$3,333	3,000	$10,000,000	State, $10,000,000
20	California	$3,218	82,172	$266,542,000	State, $266,542,000
21	Iowa	$3,178	2,167	$6,905,207	State, $6,905,207
22	Colorado	$3,078	8,808	$26,561,402	State, $16,153,608; Local, $10,407,884
23	Wisconsin	$3,065	19,971	$72,212,500	State, $50,212,500; Local, $22,000,000
24	Illinois	$2,980	72,652	$189,570,000	Not reported
25	Pennsylvania	$2,954	8,598	Not reported	Not reported
26	Nevada	$2,767	1,047	$2,896,583	State, $2,896,583
27	Texas	$2,707	176,547	$454,580,971	unknown
28	New Mexico	$2,576	396	$1,019,900	State, $1,019,900
29	Oklahoma	$2,517	31,712	$83,770,335	State, $83,770,335
30	Vermont	$2,488	3,634	$6,587,165	State, $6,587,165
31	Kentucky	$2,404	21,460	$76,050,000	State, $44,800,000; Federal, $7,750,000; Local, $23,500,000
32	Arizona	$2,283	5,050	$10,542,475	State, $10,542,475
33	Missouri	$2,254	4,707	$9,074,884	State, $9,074,884
34	Maine	$1,997	1,921	$7,119,724	State, $3,167,838; Local, $3,951,886
35	Nebraska	$1,963	1,068	$4,681,000	State, $2,097,000; other sources, $2,584,000
36	Kansas	$1,686	5,900	$9,578,309	State, $9,578,309
37	South Carolina	$1,374	17,351	$28,242,783	State, $24,742,783; Federal, $1,500,000; Local, $2,000,000
38	Maryland	$721	23,380	$19,265,000	State, $19,265,000
n/a	Florida***	tbd	95,000	tbd	tbd

*Does not include federal spending.

** Head Start data are for fiscal year 2005.

***Florida's public prekindergarten program began in Fall 2005. Enrollment data reflect estimated enrollment for the 2005-2006 school year from the Florida Agency for Workforce Innovation.

Note: Additional federal spending on preschool for special education students is estimated at $240 million. Eleven states do not offer state-funded preschool programs (Alaska, Idaho, Indiana, Mississippi, Montana, New Hampshire, North Dakota, Rhode Island, South Dakota, Utah, and Wyoming.

Sources: W. Steve Barnett, Jason T. Hustedt, Kenneth B. Robin, and Karen L. Schulman, *The State of Preschool: 2005 State Preschool Yearbook* (New Brunswick, NJ: NIEER, 2005), Table 6 and Appendix A, p. 194; Administration for Children and Families, Department of Health and Human Services, "Head Start Statistical Fact Sheets" available at <http://www2.acf.hhs.gov/programs/hsb/research/factsheets.htm> Accessed on May 11, 2006.

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Page 39, EDMUND B. FITZGERALD

I approve of this statement, in that early education has already proved its value to the American economy. However, I am less impressed with the suggested funding methods, and believe this section needs significantly more innovative work. If the State of California's Proposition 82 is an example of the funding methodology to be used, this nation's propensity for public programs that spend a lot to provide a little shall be again repeated. An excellent example of public sector empire-building.

Page 42, JAMES Q. RIORDAN

A free universal voluntary preschool system is a good idea. [I believe this even though I am not persuaded that the specific forecasted present value benefit estimates cited in this report will stand the test of future rigorous analysis]. The system should be provided through the public schools or via vouchers in private settings that meet reasonable standards. The system does not need to be perfect. We should be content to do the best we can as soon as we can but we should commit to make continuous improvement over time based on what works.

Page 43, JOSH S. WESTON

This CED report makes the economic case for broader availability of preschool education. It does not, however, go into depth about how the transition to such a broader system might be managed, or the precise means by which it could be financed. Here is a specific "stalking horse blueprint" that might accelerate near-term progress. It is one that:

- Permits state initiatives, standards, and alternative approaches.
- Offers and induces choice plus competition between schools.
- Combines simplicity and necessary gradualism. (Teachers, oversight, and facilities for all 3-and 4-year olds would require many years and much more funding.)
- Provides for a simple, quite affordable incentive grant to induce action by states and parents.

1. *Head Start* funding and quality standards should be improved to provide more qualified teachers, lower staff turnover, better outcomes, accountability, and wraparound care for those parents who need it.
2. The first *new step* should aim only at four-year olds in *working-poor* families (to be defined) who don't quality for Head Start. It could be a federally-offered 3 for 1 matching voucher (parent incentive certificate) to any state that simultaneously offers its own $1000-$2000 annual tuition vouchers for such four-year olds. Unlike Head Start, the vouchers could cover somewhat less than full cost, to induce parental involvement.
3. Vouchers would be redeemable in any public, private, or Head Start institution that obtained state certification as to quality and safety. They would cover part-day education, with higher redemption value when wrap-around child care is provided by the institution. The voucher might be 50 percent redeemable at enrollment and 50 percent at completion of the enrollee's school year.
4. To induce political acceptability and greater enrollment, a state might have the option to also offer lower value, federally matched vouchers to nonpoor families.
5. To induce Head Start quality and competition, Head Start parents might have the option to opt out of Head Start and apply instead for a working-poor voucher at another institution.
6. Since all state and all eligible parents would not accept the challenge, it is not likely to initially cost the Federal government more than 1 million student vouchers (only $5 billion per year?), while providing significant stimuli and role models for universal optional pre-K education and wrap-around child care (where desired and needed) at a later date.
7. Given the enduring value of enhanced school readiness, this pilot investment of 0.05 percent of GNP could produce a huge lifetime return on investment for each participant.

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